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(19) **United States**(12) **Patent Application Publication****Wong et al.**(10) **Pub. No.: US 2006/0103226 A1**(43) **Pub. Date: May 18, 2006**(54) **MEDICAL TABLE SHOULDER CHAIR****Related U.S. Application Data**

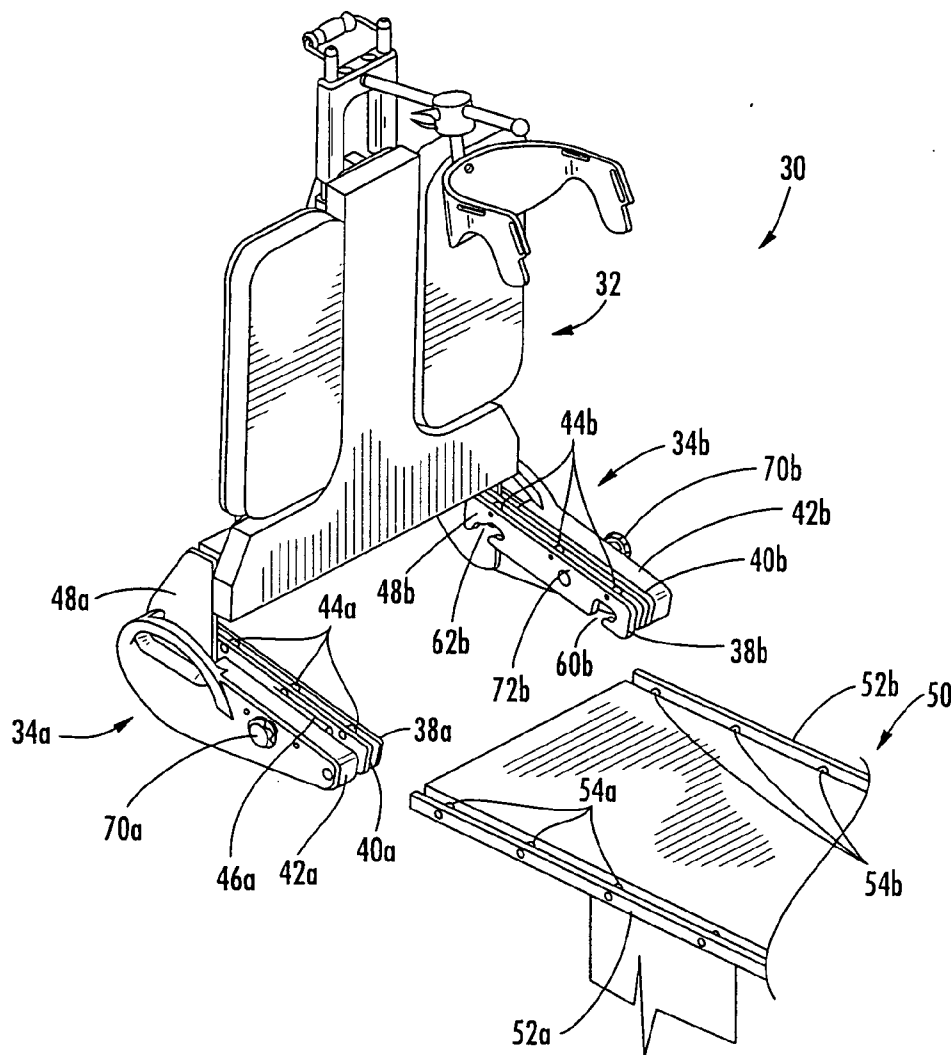
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WALTHAM, MA 02451-1018 (US)(57) **ABSTRACT**

A shoulder chair releasably attachable to a table including rails each mounted to the table via spacers. The shoulder chair has a back portion and side plate assemblies extending from opposing sides of the back portion. Each side plate assembly includes at least an inner side plate with forward and rearward slots which receive the rail spacers of the table therein.

(21) Appl. No.: **11/229,744**(22) Filed: **Sep. 19, 2005**

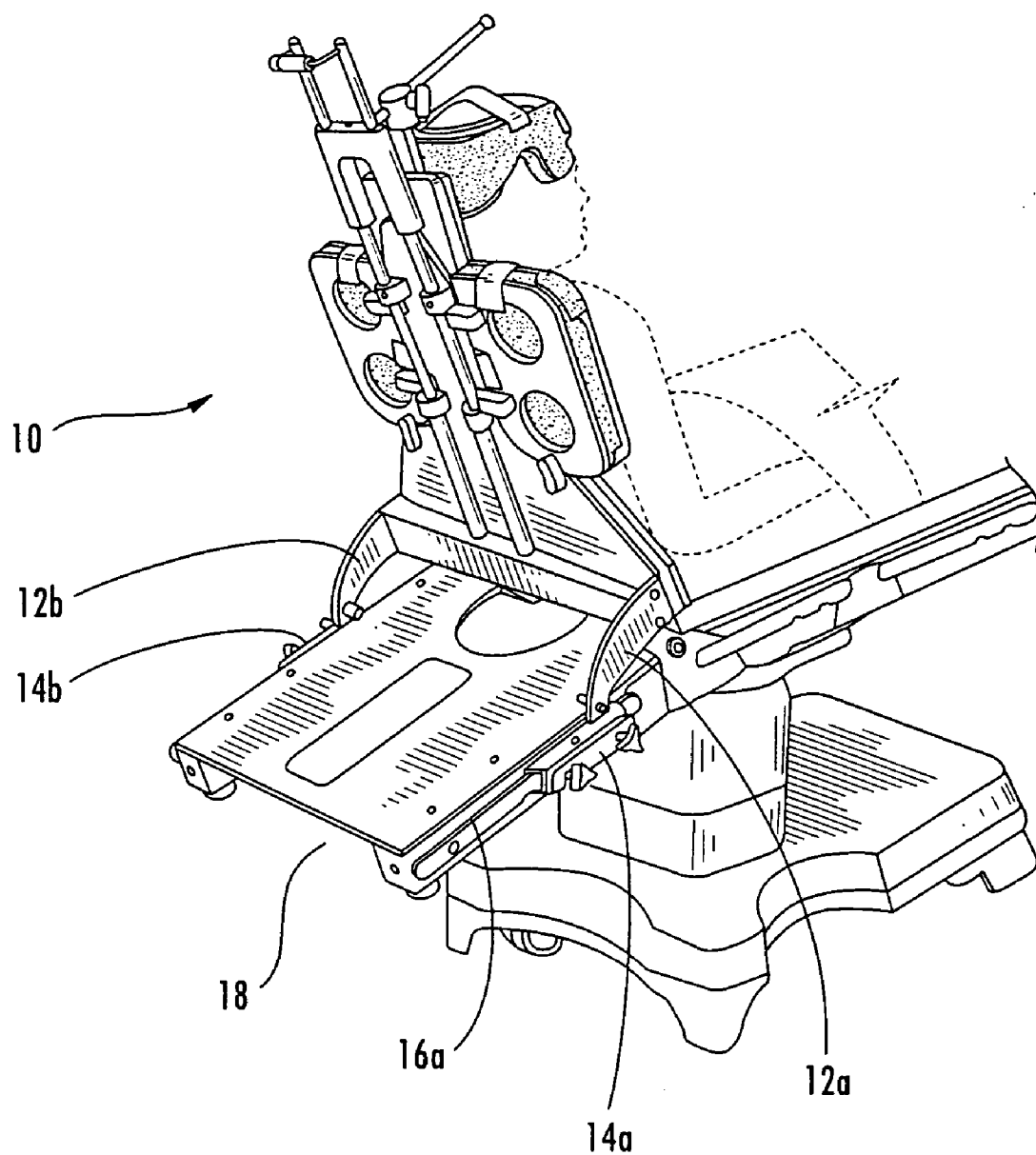


FIG. 1
(PRIOR ART)

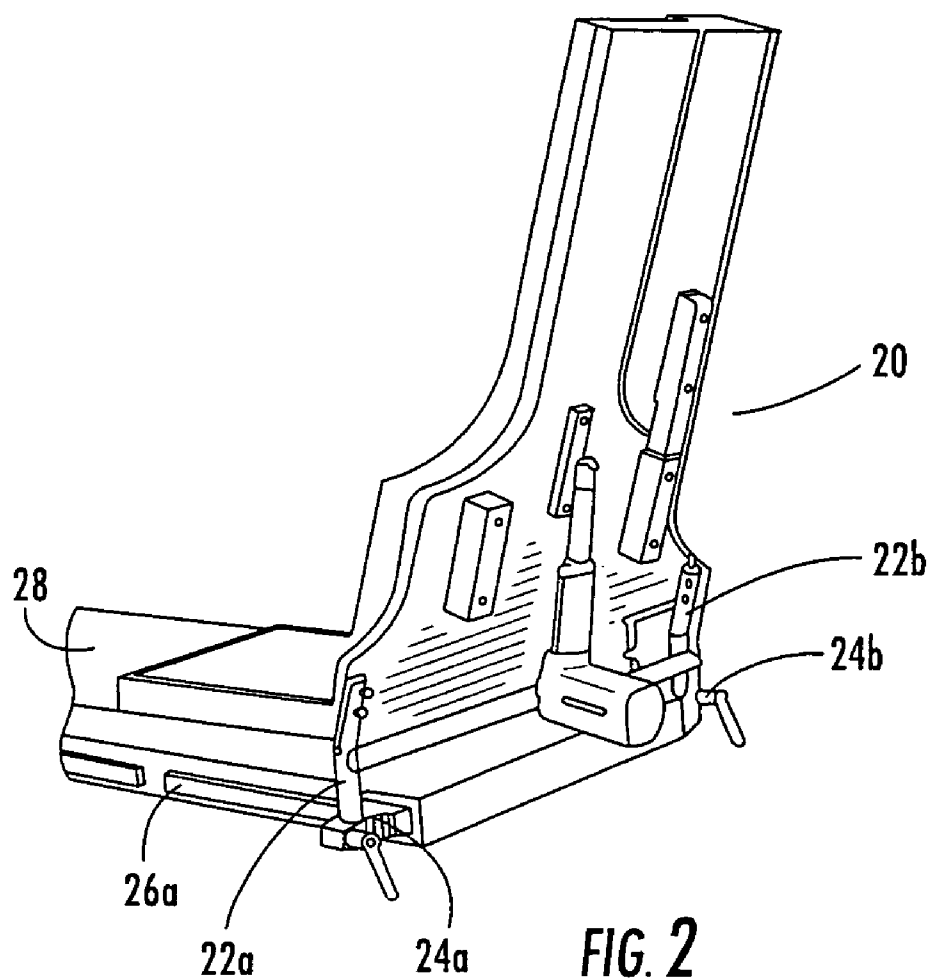
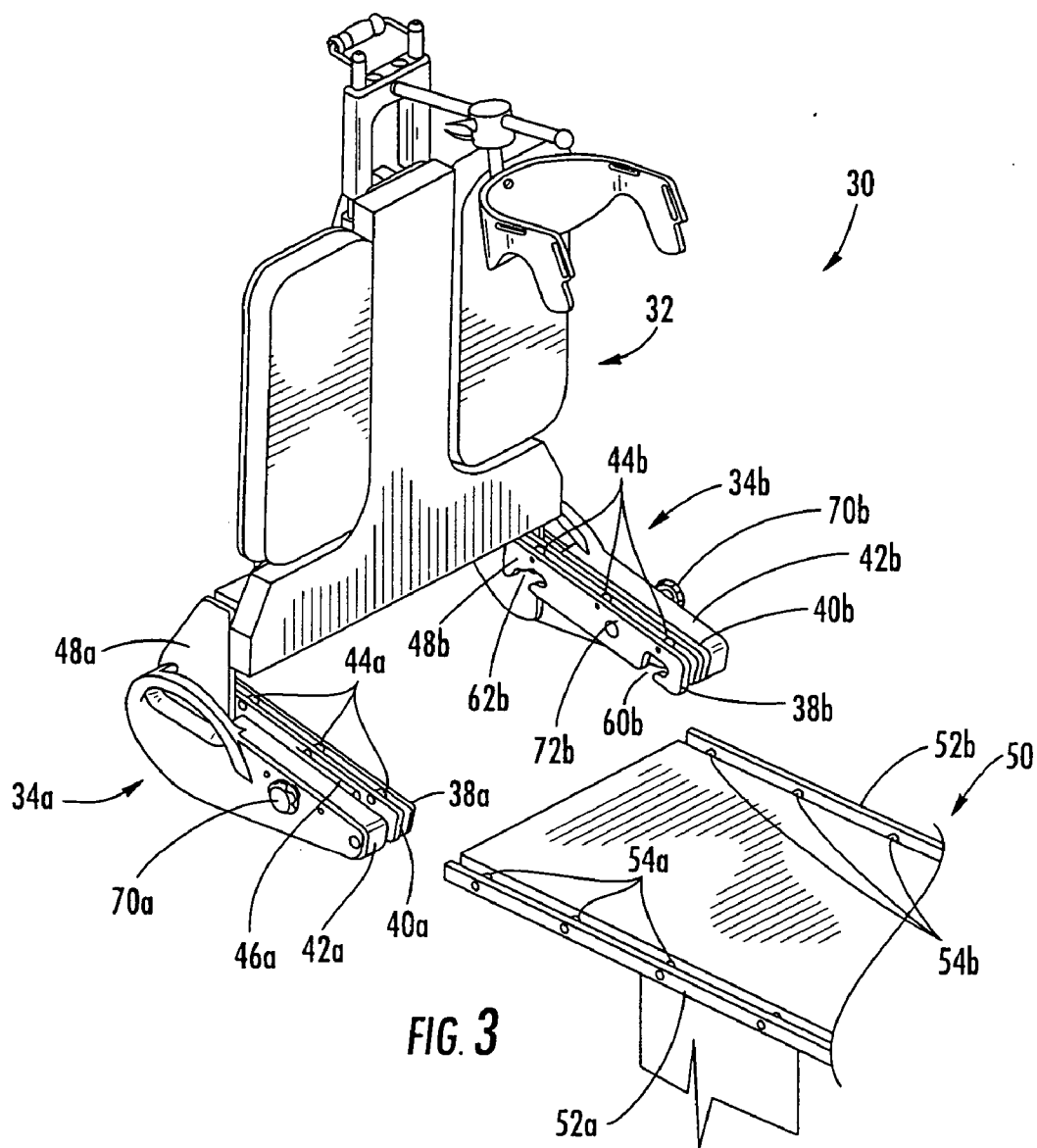


FIG. 2
(PRIOR ART)



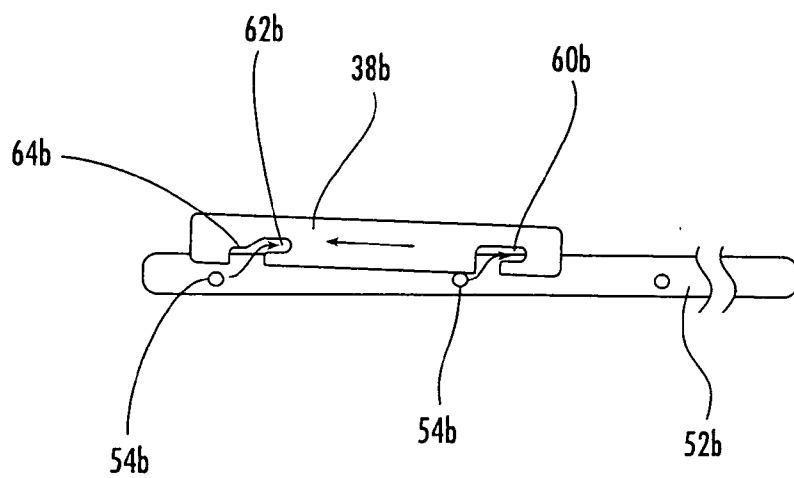


FIG. 4A

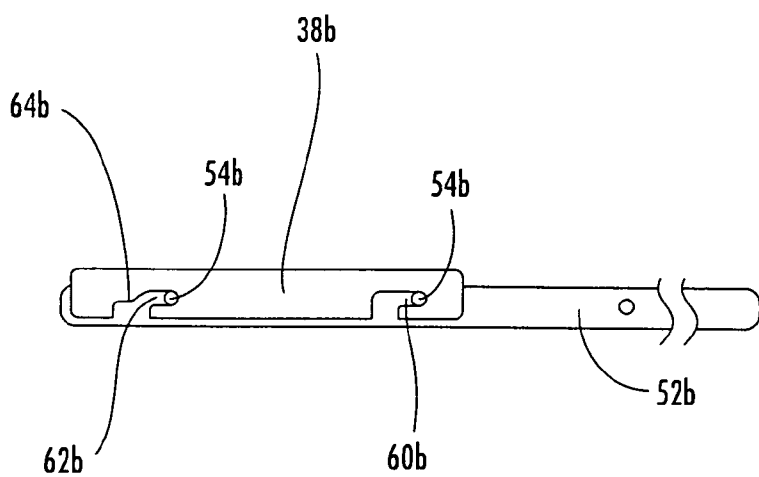


FIG. 4B

MEDICAL TABLE SHOULDER CHAIR

RELATED APPLICATIONS

[0001] This application claims priority to provisional Patent Application No. 60/610,933 filed Sep. 17, 2004.

FIELD OF THE INVENTION

[0002] This subject invention relates to shoulder chairs for medical (e.g., operating room or surgical) tables.

BACKGROUND OF THE INVENTION

[0003] There is sometimes a need to have a patient sit as opposed to lie on a surgical table for various medical procedures. Thus, those skilled in the art have devised shoulder chairs releasably attachable to the surgical table. The patient sits on the surgical table with his back supported by the shoulder chair. U.S. Pat. No. 6,564,406, incorporated herein by this reference, discloses a shoulder chair with mount blades received in rail clamps attached to attachment rails on the sides of the medical table. U.S. Pat. No. 6,804,846, also incorporated herein by this reference, similarly discloses posts received in clamps fixed to the side rails of a medical table.

[0004] It is desirable that a shoulder chair be easy to install, secure when installed, and also easy to remove from the surgical table. Some shoulder chairs are fairly complex and can be difficult to correctly mount on the surgical table. Some shoulder chairs are not secure even when mounted correctly. Moreover, if any shoulder chair is not installed correctly, it can detach from the surgical table causing the patient harm.

SUMMARY OF THE INVENTION

[0005] It is therefore an object of this invention to provide a new shoulder chair.

[0006] It is a further object of this invention to provide such a shoulder chair which is easy to install.

[0007] It is a further object of this invention to provide such a shoulder chair which is secure when installed on a medical table.

[0008] It is a further object of this invention to provide such a shoulder chair which is easy to remove from the medical table.

[0009] It is a further object of this invention to provide such a shoulder chair which, even if not installed exactly as designed, is still secure on the medical table.

[0010] The subject invention results from the realization that since a typical medical operating room surgical table includes attachment rails attached to the table via several rail spacers, an easier to install and more secure shoulder chair includes side plate assemblies designed to engage the rail spacers of the surgical table in a way that even if the fasteners of the side plate assemblies are not tightened, the shoulder chair is still reliably attached to the table.

[0011] The subject invention, however, in other embodiments, need not achieve all these objectives and the claims hereof should not be limited to structures or methods capable of achieving these objectives.

[0012] This subject invention features a shoulder chair releasably attachable to a table (e.g., a medical or surgical table). The table includes rails each mounted to the table via spacers. The preferred shoulder chair comprises a back portion and side plate assemblies extending from opposing sides of the back portion. Each side plate, assembly typically includes at least an inner side plate with forward and rearward slots which receive the rail spacers of the table therein.

[0013] Preferably, each slot is L-shaped, and the rearward slot has a ramped geometry. The side plate assemblies may further include an outer side plate connected to the inner side plate by spaced posts configured to sit on a rail of the table. A fastener typically extends through the outer and inner side plates and is adjustable to releasably bear upon a rail of the table. The side plate assemblies may further include an outer housing spaced from the outer side plate.

[0014] One shoulder chair in accordance with this invention includes a back portion and side plate assemblies extending from the back portion. Each side plate assembly includes at least an inner side plate including a forward L-shaped slot and a rearward L-shaped slot. The rearward L-shaped slot includes a ramped geometry.

[0015] A shoulder chair is releasably attachable to a table including rails each mounted to the surgical table via spacers. The preferred shoulder chair has a back portion and a side plate assembly extending from each side of the back portion. There is an inner side plate receivable on the inside of the rail of the table and an outer side plate, attached to the inner side plate, and receivable on the outside of the rail of the table. In one example, the inner side plate includes forward and rearward slots which receive therein the spacers of the table.

[0016] One example of a shoulder chair in accordance with this invention includes a back portion and side plate assemblies extending from the back portion. Each side plate assembly includes means for engaging rail spacers of the table. The preferred side plate assembly includes at least an inner side plate and the means for engaging includes a forward slot and a rearward slot in the inner side plate which receive the rail spacers of the table rails therein.

BRIEF DESCRIPTION OF THE DRAWINGS

[0017] Other objects, features and advantages will occur to those skilled in the art from the following description of a preferred embodiment and the accompanying drawings, in which:

[0018] **FIG. 1** is a schematic three-dimensional view showing one prior art shoulder chair;

[0019] **FIG. 2** is a schematic three-dimensional view showing another prior art shoulder chair;

[0020] **FIG. 3** is a schematic three-dimensional view of an example of a shoulder chair in accordance with the subject invention; and

[0021] **FIGS. 4A-4B** are schematic front partial views showing how the shoulder chair of **FIG. 3** is releasably but securely attached to a surgical table.

DISCLOSURE OF THE PREFERRED EMBODIMENT

[0022] Aside from the preferred embodiment or embodiments disclosed below, this invention is capable of other

embodiments and of being practiced or being carried out in various ways. Thus, it is to be understood that the invention is not limited in its application to the details of construction and the arrangements of components set forth in the following description or illustrated in the drawings. If only one embodiment is described herein, the claims hereof are not to be limited to that embodiment. Moreover, the claims hereof are not to be read restrictively unless there is clear and convincing evidence manifesting a certain exclusion, restriction, or disclaimer.

[0023] FIG. 1 shows prior art shoulder chair 10 with blades 12a and 12b receivable in rail clamps 14a and 14b, respectively. The rail clamps engage the attachment rails (e.g., rail 16a) of medical table 18. FIG. 2 shows another prior art shoulder chair 20 with posts 22a and 22b receivable in rail clamps 24a and 24b. Rail clamp 24a engages rail 26a of table 28.

[0024] Shoulder chair 30, FIG. 3, in accordance with one preferred embodiment of this invention, includes back portion 32 which can vary in design and functionality. Chair 30 also includes side plate assemblies 34a and 34b extending from opposite sides of back portion 32. As shown most clearly for side plate assembly 34a, there is typically inner side plate 38a, outer side plate 40a, and outer housing 42a. Spaced posts 44a connect inner side plate 38a to outer side plate 40a. Spacer 46a maintains outer housing 42a, attached to the outside of bracket 48a, in a spaced relationship with respect to outer side plate 40a which is attached to the inside of bracket 48a.

[0025] Surgical table 50 includes attachment rails 52a and 52b mounted to the table via spacers 54a and 54b, respectively. Inner side rails 38a and 38b of chair 30 are positionable on the inside of attachment rails 52a and 52b of table 50, respectively, and outer side rails 40a and 40b of chair 30 are positionable on the outside of table rails 52a and 52b, respectively. Posts 44a and 44b sit on the tops of table rails 52a and 52b. Each inner side rail of chair 30, as shown more clearly for side rail 38b, includes means for engaging rail spacers 54b of table 50. In this particular example, the engaging means includes forward L-shaped slot 60b and rearward L-shaped slot 62b each of which receive a spacer 54b therein as shown in FIGS. 4A-4B. Rearward slot 62b includes a ramped geometry as shown at 64b. When chair 30, FIG. 3, is correctly positioned with the inner side plates inside the table rails and the outer side plates outside of the table rails, chair 30 drops downward whereupon one spacer 54b, FIG. 4A is received in rearward slot 62b and one spacer 54b is received in forward slot 60b. The ramped geometry of rearward slot 64b causes the chair to be driven backward and each spacer 54b then slides into the terminal end of each slot 60b and 62b as shown in FIG. 4B. Fasteners 70a and 70b, FIG. 3, which extend, as shown for fastener 70b, through housing 42b, outer side plate 40b and inner side plate 38b, can then be tightened until the distal end 72b of fastener 70b bears upon table rail 52b.

[0026] But, even if fasteners 70a and 70b are not tightened, gravity will keep chair 30 locked into position and secure as shown in FIG. 4B. Alternatively, slots 60b and 62b could be curved to form shapes other than an L-shape. A slot or slots could also include a pawl that engages the spacer. Moreover, the ramped geometry of rearward slot could also be included in the forward slot or only the forward slot could include the ramped geometry.

[0027] The uniquely designed side plates of a subject invention thus guide the chair into the correct position and the unique slots in the lower portion of the inner side plates are configured to secure the shoulder chair to the medical table rail mounting spacers without the use of any moving or complex components. The slots have a geometry that force the chair backward to the locked position as it drops vertically with the force of gravity effectively securing the chair to the medical table rail. The securing slots are also uniquely positioned eccentric to the patient's center of gravity. As the weight of the surgical patient increases, the moment load increases, in turn, this increasing the resulting self-locking component at the medical table rail-mounting spacers.

[0028] The primary components of chair 30, FIG. 3 can be made of commercially available components, machined parts, extrusions and drawn shapes primarily of steel and aluminum. The result in any embodiment is a shoulder chair which is easy to install, secure when installed, and easy to remove from the medical table. Shoulder chair 30 is secure even if fasteners 70a and 70b are not tightened. Side plate assemblies 34a and 34b are designed to engage spacers 54a and 54b, respectively, which mount rails 52a and 52b to medical table 50.

[0029] Although specific features of the invention are shown in some drawings and not in others, this is for convenience only as each feature may be combined with any or all of the other features in accordance with the invention. The words "including", "comprising", "having", and "with" as used herein are to be interpreted broadly and comprehensively and are not limited to any physical interconnection. Moreover, any embodiments disclosed in the subject application are not to be taken as the only possible embodiments. Other embodiments will occur to those skilled in the art and are within the following claims.

[0030] In addition, any amendment presented during the prosecution of the patent application for this patent is not a disclaimer of any claim element presented in the application as filed: those skilled in the art cannot reasonably be expected to draft a claim that would literally encompass all possible equivalents, many equivalents will be unforeseeable at the time of the amendment and are beyond a fair interpretation of what is to be surrendered (if anything), the rationale underlying the amendment may bear no more than a tangential relation to many equivalents, and/or there are many other reasons the applicant can not be expected to describe certain insubstantial substitutes for any claim element amended.

What is claimed is:

1. A shoulder chair releasably attachable to a table including rails each mounted to the table via spacers, the shoulder chair comprising:

a back portion; and

side plate assemblies extending from opposing sides of the back portion, each side plate assembly including:

at least an inner side plate with forward and rearward slots which receive the rail spacers of the table therein.

2. The shoulder chair of claim 1 in which each slot is L-shaped.

3. The shoulder chair of claim 2 in which one said slot includes a ramped geometry.

4. The shoulder chair of claim 3 in which said slot is the rearward slot.

5. The shoulder chair of claim 1 in which said side plate assemblies further include an outer side plate.

6. The shoulder chair of claim 5 in which the outer side plate is connected to the inner side plate by spaced posts configured to sit on a rail of the table.

7. The shoulder chair of claim 5 further including a fastener extending through the outer and inner side plates and adjustable to releasably bear upon a rail of the table.

8. The shoulder chair of claim 5 in which said side plate assemblies further include an outer housing spaced from the outer slide plate.

9. A shoulder chair comprising:

a back portion; and

side plate assemblies extending from the back portion, each side plate assembly including:

at least an inner side plate including a forward L-shaped slot and a rearward L-shaped slot, the rearward L-shaped slot including a ramped geometry.

10. A shoulder chair releasably attachable to a table including rails each attached to the surgical table via spacers, the shoulder chair comprising:

a back portion; and

a side plate assembly extending from each side of the back portion and including:

an inner side plate receivable on the inside of the rail of the table, and

an outer side plate attached to the inner side plate and receivable on the outside of the rail of the table.

11. The shoulder chair of claim 10 in which the inner side plate includes forward and rearward slots which receive therein the spacers of the table.

12. The shoulder chair of claim 11 in which one said slot includes a ramped geometry.

13. The shoulder chair of claim 12 in which said slot is the rearward slot.

14. The shoulder chair of claim 10 in which the outer slide plate is connected to the inner slide plate by spaced posts configured to sit on a rail of the table.

15. The shoulder chair of claim 10 further including a fastener extending through the outer and inner slide plates and adjustable to releasably bear upon a rail of the table.

16. The shoulder chair of claim 10 in which said side plate assemblies further include an outer housing spaced from the outer slide plate.

17. A shoulder chair comprising:

a back portion; and

side plate assemblies extending from the back portion, each side plate assembly including means for engaging rail spacers of the table.

18. The shoulder chair of claim 17 in which each side plate assembly includes at least an inner side plate and said means for engaging includes a forward slot and a rearward slot in the inner side plate which receive the rail spacers of the table rails therein.

19. The shoulder chair of claim 18 in which each slot is L-shaped.

20. The shoulder chair of claim 19 in which one said slot includes a ramped geometry.

21. The shoulder chair of claim 20 in which said slot is the rearward slot.

22. The shoulder chair of claim 18 in which said side plate assemblies further include an outer side plate.

23. The shoulder chair of claim 22 in which the outer side plate is connected to the inner side plate by spaced posts configured to sit on a rail of the table.

24. The shoulder chair of claim 22 further including a fastener extending through the outer and inner slide plates and adjustable to releasably bear upon a rail of the table.

25. The shoulder chair of claim 22 in which said side plate assemblies further include an outer housing spaced from the outer slide plate.

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