Dec. 1, 1970 N. E. BRYDEN 3,544,161

THERAPEUTIC CHAIR

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Fig. 1

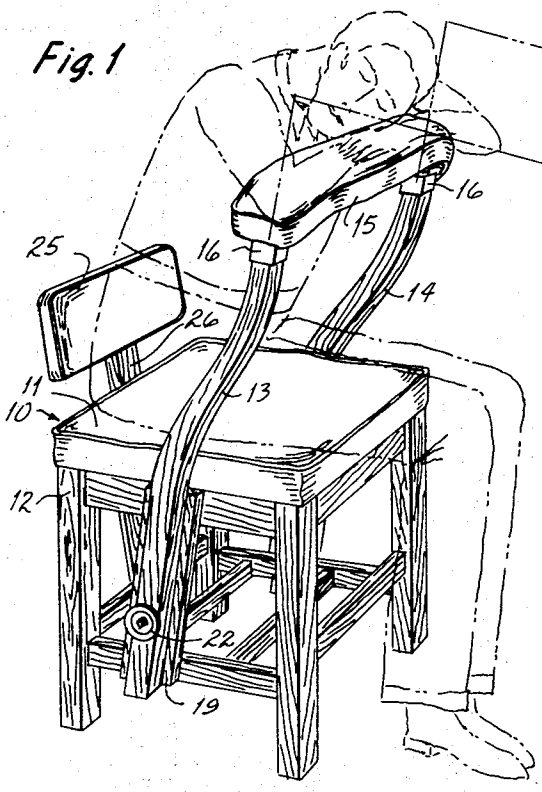


Fig. 5

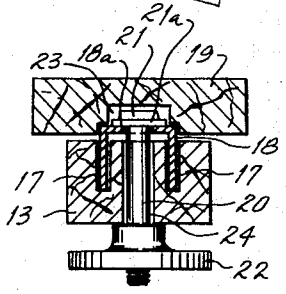


Fig. 4

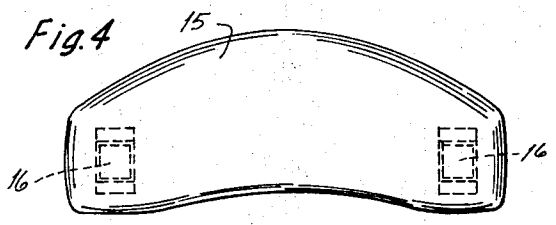


Fig. 2

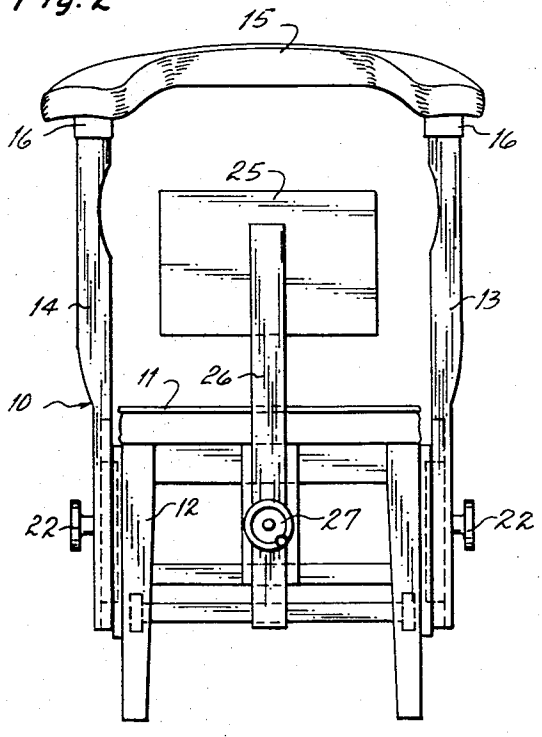
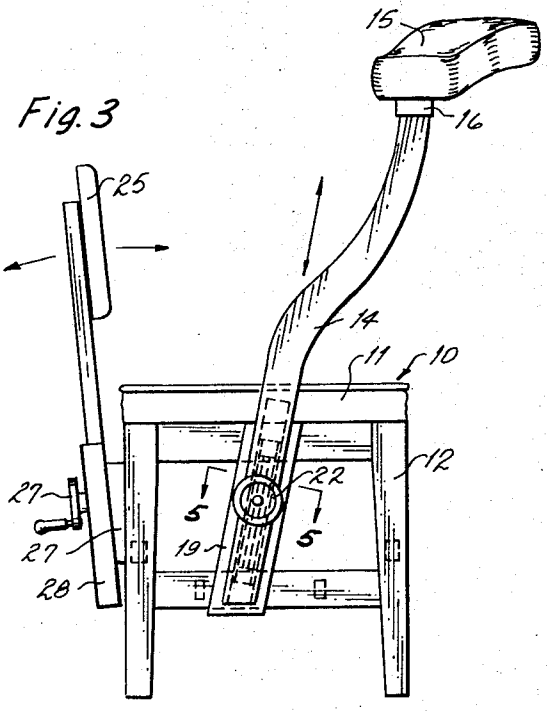


Fig. 3



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Fig. 6

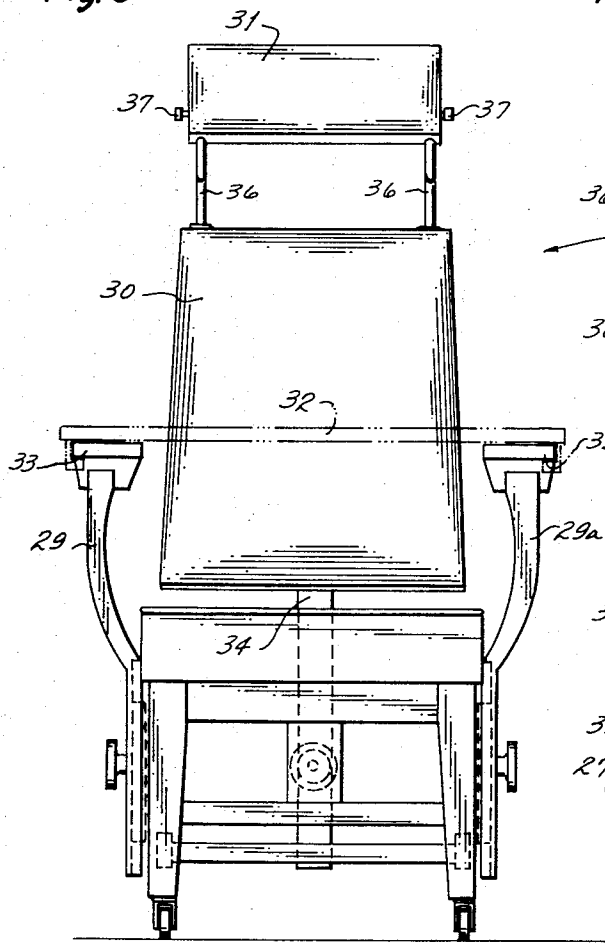


Fig. 7

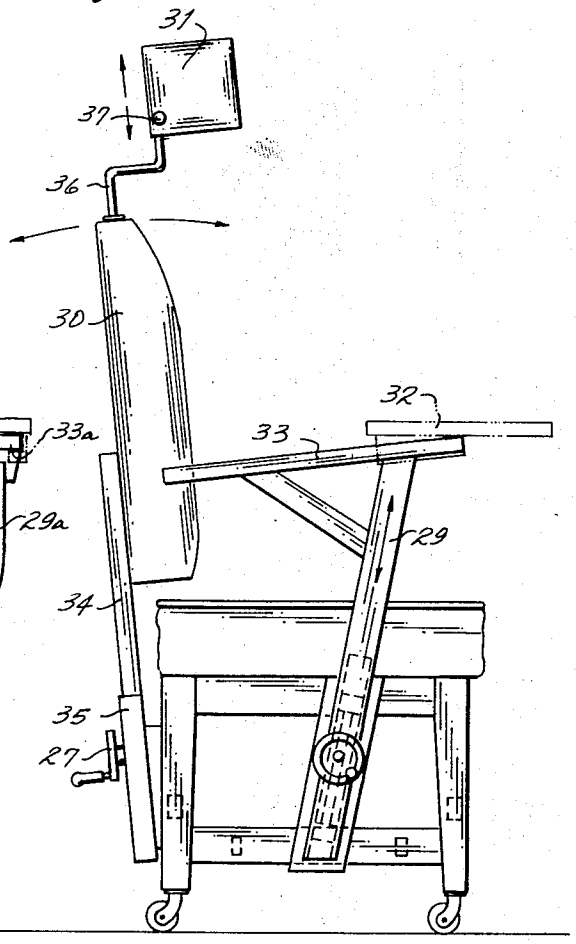


Fig. 8

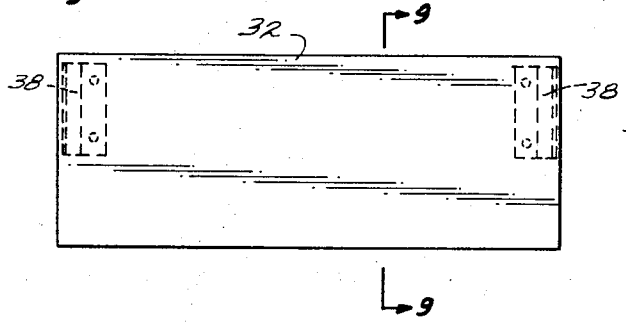
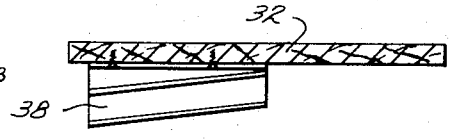


Fig. 9



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3,544,161

THERAPEUTIC CHAIR

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Int. Cl. A47c 7/36, 7/42
U.S. Cl. 297—391 10 Claims

ABSTRACT OF THE DISCLOSURE

A therapeutic chair particularly designed for patients recovering form a heart attack. The chair has interchangeable side sections and a back rest which are easily adjustable and removable to facilitate handling of the patient sitting in the chair. In one modification, the side sections support a head and arm rest for supporting a sleeping or resting person in a sitting position. In another modification, the side sections comprise chair arms, the back rest is provided with an adjustable head rest, and a removable tray adapted to fit over the side arms is provided for reading, writing, eating and the like.

This invention relates to a therapeutic chair, more particularly, it relates to a therapeutic chair designed for patients recovering from a heat attack.

It is well known that subsequent to a heart attack a patient frequently encounters pulmonary edema. In pulmonary edema, the patient's lungs fill with fluid causing great discomfort. To relieve this discomfort, the patient should be placed in a sitting position such that there is no external pressure on the patient's lungs. In the prior art, chairs for such a patient are unsatisfactory. To be satisfactory, the chair which the patient is sitting in should be adapted to allow the patient to sleep or rest, in a sitting position, without danger of falling from the chair or the chair tipping over. The portions of the chair above the seat should be easily removable to facilitate handling of the patient. Further, the chair should be flexible in allowing a patient not only to sleep comfortably but to sit comfortably and to provide a means for the patient to eat, read or write and the like. Further still, the patient should be able to easily adjust the side extensions of the chair without need of a third party. Finally, the chair should be so constructed that it does not block circulation of blood in the legs of the patient.

Accordingly, it is an object of the present invention to provide a therapeutic chair particularly designed for handling patients recovering from a cardiac condition.

Another object is to provide a therapeutic chair wherein all portions of the chair above the seat are easily and quickly removable to facilitate handling of an invalid.

Still another object is to provide a therapeutic chair with interchangeable back rest and side sections such that the chair may be adapted to the particular needs of an invalid patient.

A further object is to provide a therapeutic chair with a head and arm rest enabling a patient to rest or sleep in a sitting position with minimum discomfort.

A still further object is to provide a therapeutic chair having side sections which a sitting patient may adjust easily and quickly.

Another object is to provide a therapeutic chair with an easily adjustable head rest.

Another object is to provide a therapeutic chair for supporting a sitting sleeping patient without danger of the chair being tipped over.

Another object is to provide a therapeutic chair for a patient which does not cut off the circulation in the patient's legs.

Other objects in this invention will in part be obvious and will in part appear hereinafter.

The invention accordingly comprises an article of manufacture possessing the features, properties, and the relation of elements which will be exemplified in the article hereinafter described, and the scope of the invention will be indicated in the claims.

For a fuller understanding of the nature and objects of the invention, reference should be had to the following detailed description taken in accordance with the accompanying drawings in which:

FIG. 1 is an isometric view of the therapeutic chair in combination with a head and arm rest as used by a patient.

FIG. 2 is a rear view of the therapeutic chair shown in FIG. 1.

FIG. 3 is an end view of the therapeutic chair shown in FIG. 1.

FIG. 4 is a plan view of the head and arm rest shown in FIG. 1.

FIG. 5 is a sectional view of the adjusting mechanism for the side members of the chair taken along lines **5—5** of FIG. 3.

FIG. 6 is a front view of a modification showing the chair equipped with side arms, an adjustable head rest and removable utility tray.

FIG. 7 is an end view of the chair shown in FIG. 6.

FIG. 8 is a plan view of the utility tray shown in FIGS. 6 and 7.

FIG. 9 is a cross sectional view of the utility tray taken along lines **9—9** of FIG. 8.

Similar reference characters refer to similar parts throughout the several views of the drawings.

Referring now to the drawings and particularly FIGS. 1 through 5 thereof, there is illustrated a chair generally indicated as **10** having a seat **11** supported by a seat support structure **12** in a manner well known in the art.

At each side of the chair is an upwardly and forwardly extending side extension **13** and **14** for supporting a head and arm rest **15**. The rest **15** is formed at its bottom ends with suitable sockets **16** for receiving the upper ends of extensions **13** and **14**. This method of engaging rest **15** to extensions **13, 14** is very helpful to a cardiac patient as it allows the rest to be easily and quickly engaged and disengaged with the extensions enabling the patient to easily remove himself from the chair.

Rest **15** is substantially horizontal when in place on the extensions. The top surface of the rest is cushioned and suitably shaped to conform to the natural contours of the patient's arm when they are placed on the rest as shown in FIG. 1. This feature enables the patient to rest comfortably and reduces the possibility of discomfort of a cramped blood circulation system.

The lower ends of extensions **13** and **14** are slidably affixed to chair support structure **12** at the respective sides of the chair. Although the manner in which the extensions are slidably affixed will be described in relation to only one of the extensions, it is to be understood that both extensions are affixed in the same manner.

As best seen in FIGS. 3 and 5, a substantial portion of the lower ends of the extensions are formed with parallel grooves **17** along the extension's inward face. The grooves run in a direction conforming to the longitudinal axis of the extension, and extend to the extension's end face. These grooves **17** are suitably spaced to ride on open ends of a U-shaped channel **18**. The exterior face of the closed end of the U-shaped channel **18** is secured in longitudinal alignment with a load bearing frame **19** which in turn is affixed respectively to each side of chair support structure **12** as shown. As will be described in more detail below, to enable the extension to be clamped to channel **18**, the grooves **17** have a shallower

recess than the distance the open ends of channel **18** extend from frame **19**. Channel **18** is also formed with a pin receiving slot **18***a* that runs substantially the length of the channel along the longitudinal axis of the channel's closed end.

A restraining pin **20** retains the extension to channel **18** and frame **19**. Restraining pin **20** is formed with a head **21** at one end and a threaded portion at its opposite end which receives a threaded clamping wheel **22**. Head **21** of pin **20** rides in recess **23** formed in frame **19**. The recess **23** is in longitudinal alignment with the axis of load-bearing frame **19** and extends approximately the length of the frame. A pin receiving hole **24** is provided in the extension at its lower end to receive pin **20**. In an assembled position, shown in FIG. 5, head **21** and washer **21***a* of pin **20** are received within the recess **23** of frame **19** and pin **20** extends through slot **18***a* of channel **18**. Pin **20** further extends through hole **24** formed within the extensions **13, 14**. The open ends of channel **18** are positioned in grooves **17** of the extension. Clamping wheel **22** is screwed on the threaded end of the pin **20** retaining the extension on open ends of channel **18**. As can be easily seen, when the extension is to be secured in a particular position, clamping wheel **22** locks or secures the extension against open ends of channel **18**.

When an extension is to be adjusted vertically, clamping wheel **22** is released enabling the extension to slide vertically while being guided on open ends of channel **18**. The extensions can be easily removed by simply disengaging wheel **22** from pin **20**.

The chair is also provided with a back rest **25** supported by an upright support arm **26**. An adjusting means **27** is affixed to the rear of the chair support structure for adjusting the back rest from an upright to an inclined position. The back rest adjusting means is preferably of the well known worm gear type. Included is a provision of a socket **28** in combination with the adjusting means for supporting arm **26**. The lower end of arm **26** is suitably adapted to be received within socket **28** enabling back rest **25** to be quickly and easily disengaged from the chair support structure **12**.

A patient may sleep in the chair by resting on rest **15** as shown in FIG. 1. Rest **15** is so positioned relative to chair support structure **12** such that the patient's weight is distributed over the chair support structure in a manner which keeps the patient and chair from falling over when the patient is asleep. The seat **11** of the chair support structure is cushioned and is of such size that an upper portion of a patient's legs adjacent the knees extends over the chair thereby preventing a stoppage of circulation of blood thereby preventing venous pooling and blood clotting.

The ease in which the side extensions and back rest may be removed enables the chair to have a versatile feature of being provided with side arms and back rests which may be easily interchanged according to the needs of a patient. A modification of the chair showing the chair with such an interchangeable back rest and side members is shown in FIGS. 6 through 9. This modification is particularly suitable to a patient who wishes to read, write, eat or the like in an upright, comfortable sitting position.

In this modification, the side extension and back rest of the first embodiment discussed above are interchanged with a pair of side arms **29, 29***a* and a larger back rest **30** with a detachable, adjustable head rest **31**. A writing, reading, eating, etc., tray **32** is also provided to engage with arm shelves **33, 33***a* on side arms **29, 29***a*.

The lower ends of side arms **29, 29***a* are grooved in a manner similar to the grooves **17** of the first embodiment, and are slidably affixed to the side of the chair as previously discussed for extension **13** and **14**. Side arms **29, 29***a* terminate at their upper ends in arm shelves **33, 33***a* for supporting a patient's arms.

Back rest **30** is supported by a support arm **34** which has its lower end received in a socket **35** formed in adjusting means **27** which adjusts the back rest from an inclined to a vertical position. As stated previously, the adjusting means is preferably of the worm gear type. A head rest **31** is attached to back rest **30** by an angular support member **36**. The head rest is slidably affixed to the angular support member and is adjustable vertically by a clamping bracket **37**. Both the back rest and head rest are cushioned.

A tray **32** for reading, eating, writing and the like, is provided to engage with arm shelves **33, 33***a*. Channels **38** are attached to the bottom of the tray adjacent each end wall. The channels open inwardly and are adapted to engage with shelves **33, 33***a* of side arms **29, 29***a*. The channels are at an angle such that when inserted upon the arms **33, 33***a* the tray rests in a horizontal position.

Thus as easily seen by the above description in the first modification the therapeutic chair enables a patient recovering from a heart attack to sleep with maximum comfort and relief in a head and arm rest without any position of the chair contacting the patient's chest cavity. This is particularly helpful to a patient having pulmonary edema where the chest cavity should be free to expand without obstruction. The rest cannot only be easily adjusted by the patient himself, but can also be entirely removed along with the chair's side members and back rest. Thus a patient may easily be transferred to or from the chair with a minimum of difficulty. The chair has the further advantage of not being capable of being turned over by a heavy unconscious patient and its seat is of such a size and relation to the patient's legs that it prevents venous pooling and blood clotting by enabling a substantail portion of the thighs to extend beyond the seat.

Further, the chair has the advantage of having interchangeable side members and back rest to suit the needs of an individual cardiac patient. As shown in the second modification, the chair is provided with a comfortable back rest which may be adjusted from an upright to an inclined position. Attached to the back rest is a head rest which is both adjustable and removable. Arm shelves are provided which can easily be adjusted by the patient for his individual comfort, as well as a tray for eating, writing, reading and the like. The tray, which engages the side arms, may easily be removed or installed by the patient himself.

It is to be understood that the chair may also be easily equipped with a safety belt and locking-casters if desired.

Thus as easily seen, the therapeutic chair enables one to comfortably sleep in safety in a sitting position, and it is also adapted such that it can be interchanged with the other back and side members which give greater comfort to the patient when reading, writing, eating and the like.

It will thus be seen that the objects set forth above, among those made apparent from the preceding description, are efficiently attained and, since certain changes may be made in the above construction without departing from the scope of the invention it is intended that all matter contained in the above description or shown in the accompanying drawings shall be interpreted as illustrative and not in a limiting sense.

Now that the invention has been described, what is claimed is:

1. A therapeutic chair comprising: a seat, a support structure for said seat, a pair of slidable and removable side members carried by said support structure and extending above said seat, a horizontal support attached to said side members whereby the user may rest both his arms and head on said horizontal support member, and adjusting means to pivotally adjust and secure said side members.

2. The therapeutic chair of claim **1** wherein said side members have at least one longitudinal recess for engaging the adjusting means and the adjusting means comprise a support rail having at least one projecting edge

for engaging the recess of the side member whereby the side member is slidably adjustable on the rail's edge and clamping means for retaining the side member on the rail.

3. The therapeutic chair of claim 2 wherein the adjusting means further includes: a load bearing frame affixed to said support structure, said rail comprising a channel having two open ends and an exterior closed end affixed in longitudinal alignment with said load bearing frame, said side member having a pair of recesses adapted to engage the channel's open ends whereby said side member rides on said channel.

4. The therapeutic chair in claim 3 wherein the clamping means comprises: a pin, said pin having an abutment on one end and a threaded portion on the other end, said channel having a slot along a substantial portion of its longitudinal axis to receive said pin, said abutment is of a size greater than said slot and rides on the interior side of said channel, said side arms having an opening to receive said pin, the threaded portion of the pin extending through said slot and side member, a clamping wheel, said clamping wheel engaging the threaded portion of the pin whereby the side member is clamped to said channel.

5. The therapeutic chair of claim 1 which further includes: a back rest, a body rest for supporting arms and head of a patient, said body rest supported by the side members in a manner such that when a patient is in a normal resting position on the rest no other portion of the patient's chest touches the chair above the seat.

6. The therapeutic chair of claim 5 which further includes: said back rest being removable, said body rest being substantially horizontal and having an upper surface conforming to the natural contours of a patient's arms when resting on the rest, and said side members having at least one longitudinal recess for engaging the adjusting means.

7. The therapeutic chair in claim 6 where the adjusting means comprise: a support rail having at least one projecting edge for engaging the recess of the side member whereby the side member is slidably adjustable on the rail's edge and clamping means for retaining the side member on the rail.

8. The therapeutic chair of claim 1 which further includes: a back rest, an adjustable head rest mounted on said back rest, and arm shelves supported by said side members.

9. The therapeutic chair of claim 8 wherein said side members have at least one longitudinal recess for engaging the adjusting means and the adjusting means comprise: a support rail having at least one projecting edge for engaging the recess of the side member whereby the side member is slidably adjustable on the rail's edge and clamping means for retaining the side member on the rail.

10. The therapeutic chair of claim 8 which further includes: a utility tray and mounting means for removably attaching said tray to said side arm, said mounting means including a channel like support member.

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