United States Patent

[11] **3,565,419**

[72] Inventors **Charles D. Allard**
1620 Hickory Ave., San Leandro, 94579;
Eugene R. Allard, 824 Fulton Ave., San Leandro, 94577; Robert Ross Newlon, 2060 East St., Hayward, Calif. 94501;
Vernon C. Stehr, Piedmont, Calif. 94611

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[54] **TORSO TILT BOARD**
6 Claims, 11 Drawing Figs.

[52] **U.S. Cl.** **269/325,** 269/328; 128/82; 5/327; 297/377
[51] **Int. Cl.** **A61g 15/00**
[50] **Field of Search** ..... 269/322—328; 128/82—84, 70; 297/353, 313, 377, 337, 410, 411, 416, 422, 463; 5/327, 332

[56] **References Cited**

UNITED STATES PATENTS

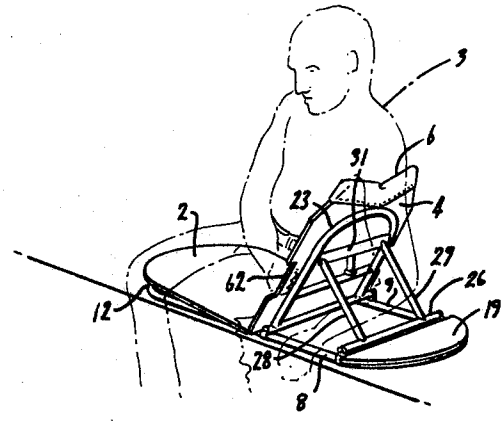
661,232	11/1900	Shipley	269/324
1,527,754	2/1925	Simon	297/463X
3,235,308	2/1966	Conner	297/337
3,423,773	1/1969	Yamate	(297/377UX)

FOREIGN PATENTS

1,030,790	3/1953	France

Primary Examiner—Theron E. Condon
Assistant Examiner—Robert C. Riordon
Attorney—Milmore and Cypher

ABSTRACT: A torso tilt board consisting of a frame having a seat member mounted on the frame at an angle from the horizontal and an inclined member adjustable to varying positions including a top edge portion contoured for cradling either the arm or neck of a patient and formed with a depression in the midportion. The device being useful particularly for patients having serious injuries involving the upper extremities, chest and abdomen.



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SHEET 1 OF 2

Fig. 3

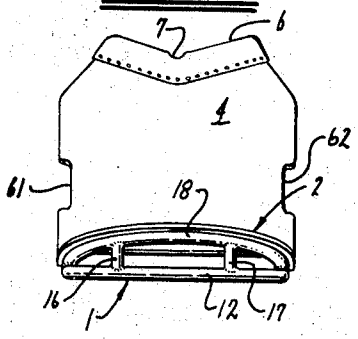


Fig. 2

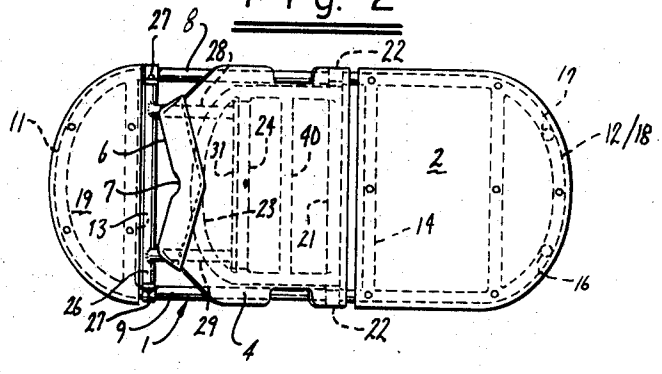


Fig. 4

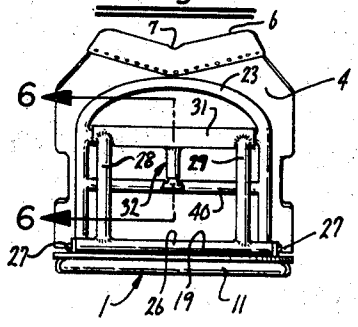
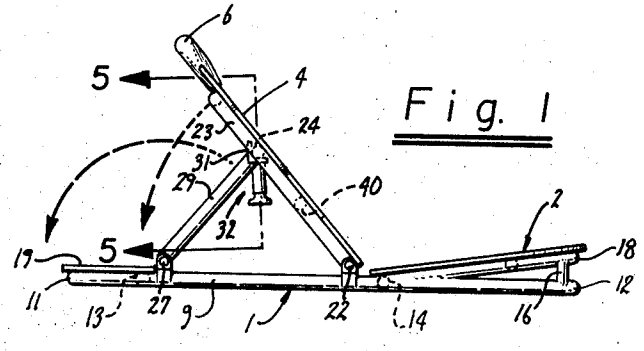


Fig. 1



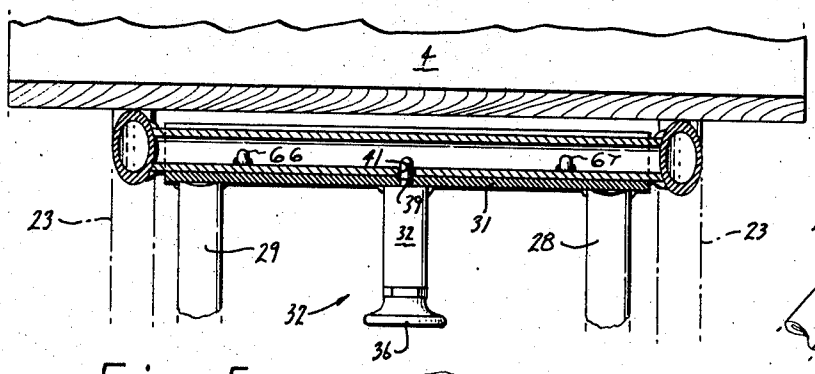


Fig. 5

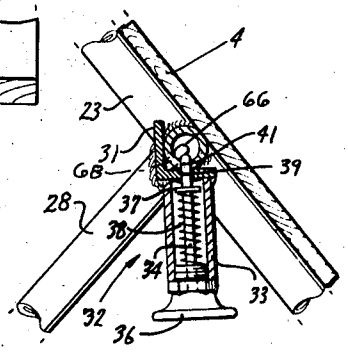


Fig. 6

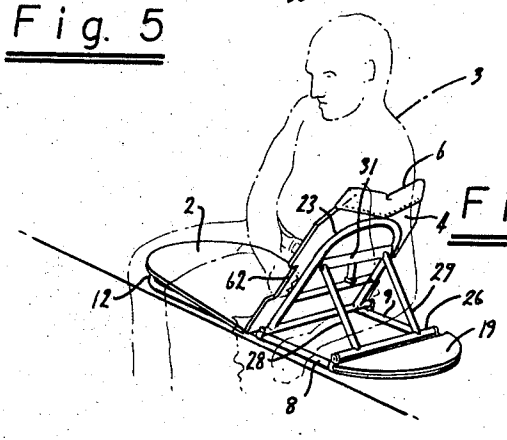


Fig. 7

INVENTORS
Charles D. Allard
Eugene R. Allard
Robert Ross Newlon
Vernon C. Stehr, M.D.

BY Melmore + Gyscher
Attorney

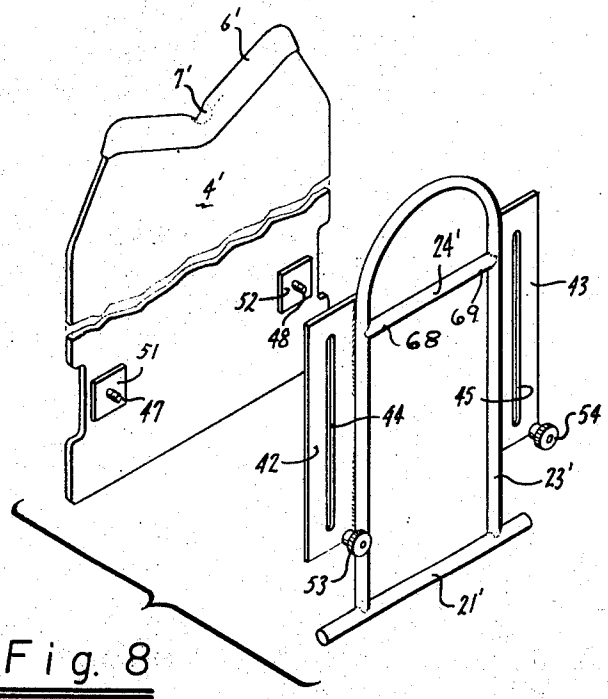


Fig. 8

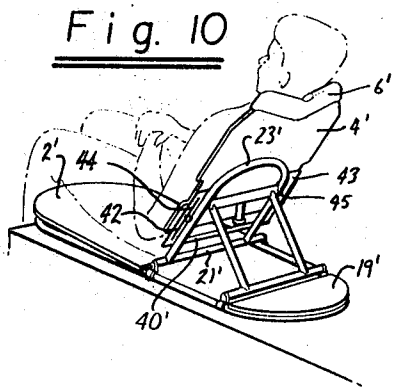


Fig. 10

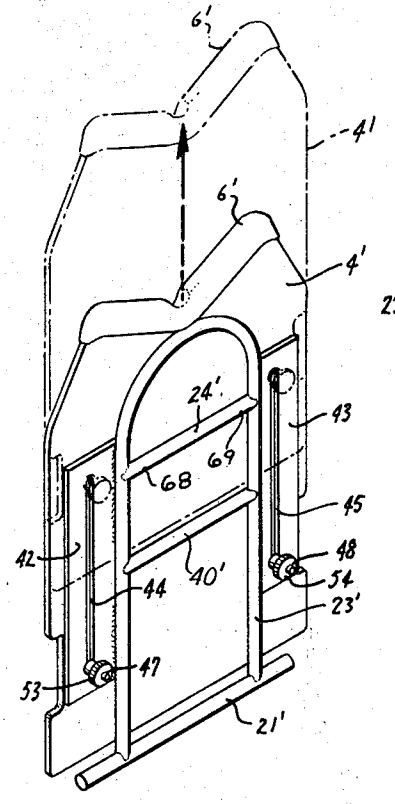


Fig. 9

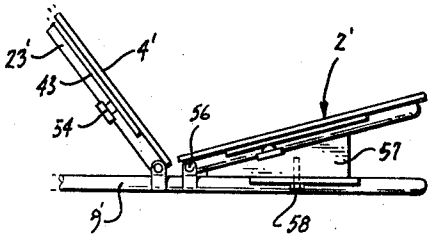


Fig. 11

INVENTORS
Charles D. Allard
Eugene R. Allard
Robert Ross Newlon
Vernon C. Stehr, M. D.

BY Milmore + Cypher Attorney

TORSO TILT BOARD

BACKGROUND OF THE INVENTION

This invention arose out of the need to provide a means for supporting patients with various injuries to the upper extremities while they were being treated by a surgeon or physician.

Specifically, it had been the practice to apply casts to the upper extremities of patients while they were seated on a table or gurney. The patient with a broken arm for example is usually weak and nauseous and must be supported by one or more nurses or aids. The prior art devices did not show any devices which supported a patient on an incline so that his arm would be positioned to fall away from the body for ease in applying a cast. Further, the prior art did not disclose any device which did not restrict the flow of blood to the arm when in the position just described.

SUMMARY

The gist of the invention is to provide seating which supports the torso of a patient at an incline with the seat also inclined at an angle, the upper portion of the inclined board being constructed so that the flow of blood is not restricted to the upper extremities.

An object of the invention is to provide a support for a person having an injury to the upper extremities so that casts may be applied. Other objects are to provide a device which will hold a patient in a semierect attitude permitting less painful respiratory movements associated with multiple fractured ribs as with crush injuries of the chest; hold the patient fixedly while aspirating the pleural cavity or performing a thoracotomy; ease the stress on the cardiovascular system; and permit dependent settling of inflammatory exudates in the abdominal cavity.

A further object is to provide a light weight device which may be quickly adjusted to support persons of various size and builds, can be collapsed for storage, is easy to use and maintain, and yet is inexpensive to manufacture.

BRIEF DESCRIPTION OF THE DRAWINGS

FIG. 1 is a side elevation view of the device constructed in accordance with the present invention.

FIG. 2 is a top elevation view of the device.

FIG. 3 is a front elevation view of the device.

FIG. 4 is a rear elevation view of the device.

FIG. 5 is an enlarged view of a portion of the device taken substantially along the line 5–5 of FIG. 1.

FIG. 6 is an enlarged view of a portion of the device taken substantially along the line 6–6 of FIG. 4.

FIG. 7 is a perspective view of the device showing a patient in phantom line using the device.

FIG. 8 is an exploded view of an alternate way of making a portion of the device.

FIG. 9 is a perspective view of the portion shown in FIG. 8 with the parts assembled, and portions in phantom showing the adjustable feature. FIG. 10 is a diminished perspective view of the device showing a patient in phantom line using the device in a different position.

FIG. 11 is a side elevation view of an alternate form of a portion of the device.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

The torso tilt board of the present invention consists briefly of a base frame 1, a seat member 2, mounted on the frame at an angle from the horizontal for supporting a seated patient 3; an inclined member 4 mounted on the frame for supporting the torso of the patient; and the upper end 6 of the inclined member being contoured and positioned at an elevation to cradle beneath the arm of the patient and being formed with a depression 7 in the midportion of the contoured portion to prevent cutting off the circulation of blood to the arm.

The frame may be constructed in various ways of various materials but is here constructed of a light weight metal tubing consisting of elongated members 8 and 9 formed in semicircles 11 and 12 at either end. Crossmembers 13 and 14 provide rigidity.

To provide support for the seat 2, supports 16 and 17 elevate the semicircular tubular member 18. The seat is connected to the semicircular member and may be constructed from wood or plastic. Preferably the seat surface is without contour to accommodate different size persons either in the side or back positions as seen in FIGS. 7 and 10. A semicircular sheet member 19 rests upon the other end of the frame.

The inclined member may be made from wood or plastic or other suitable material and is sufficiently long and wide to support the torso of a person. The frame supporting and attached to the inclined member consists of a crossmember 21 pivotally mounted on the base frame at point 22, a U-shaped member 23 and a crossmember 24.

The inclined member is supported at an opportune elevation of 40° from the vertical by bracing consisting of a crossmember 26 pivotally mounted on the base frame at pivot 27 with struts 28 and 29 connecting angle member 31 to the crossmember.

A locking means 32 releasably connects the bracing to the crossmember 24 of the inclined member and may be any of various means but here consists of a sleeve 33 connected to the angle member and containing a pin 34 formed with a finger engageable knob 36 and a spring retainer 37. Spring 38 biases the pin to a position through an opening 39 in the angle member and an opening 41 in the crossmember of the inclined member. By providing additional crossmembers such as member 40 on the frame supporting the inclined member, different elevations of the inclined member are easily attained.

Preferably the upper end of the inclined member is contoured as shown in the drawings so that the arm of the patient may be comfortably cradled. A slight incline of the sides toward the center tends to hold the arm so that the patient is supported from moving forwardly or backwardly. The contoured portion may be padded, leaving a depression at the approximate center to prevent pressure on the artery to the arms or the inclined member may be molded with an enlargement and the necessary contour and depression.

The device is collapsible to a very compact form by merely releasing the locking means, folding the bracing means down upon the base frame and permitting the inclined member to swing down upon the base frame.

In FIGS. 8, 9, and 10 is shown a modification of the inclined member to render the device suitable for large and small individuals. The modification consists of the addition of flanges 42 and 43 formed with slots 44 and 45 connected to member 23′ of the frame consisting also of crossmembers 21′ 24′, and 40′. The inclined member 4′ is modified by adding threaded studs 47 and 48 attached to plates 51 and 52. The studs are positioned in slidable registration in slots 44 and 45 and nuts 53 and 54 threaded on the studs clamp the inclined member to the modified frame in an infinite number of positions.

A further modification of the device is shown in FIG. 11 in which the seat member 2′ is pivotally mounted on the base frame at pivot 56. The means for raising the seat can be effected in several different ways, and one means is shown in the drawing. Frame members 8′ and 9′ beneath the seat portion are formed with slots and sliding members such as wedges 57 formed with threaded holes for receiving bolts 58 slide thereon.

The frame beneath the seat may be provided with flanges formed with slots in much the same manner as the frame shown in FIG. 8 so as to permit the seat to be extended to accommodate persons of different size. Threaded studs and locknuts may be further provided to lock the seat in the extended position.

Hand holds 61 and 62 may be formed in the inclined member as shown in FIG. 3. It has been found that providing a place on the device for the patient to hold with his free hand, especially during the placing of as casts, gives the patient a place to steady himself and a place to grip during moments of pain.

FIG. 10 shows the device used in the supine position for emergencies as noted at the beginning of this specification. Notice that the contoured portion of the inclined member is positioned to cradle the head and neck of the individual to give him a firm comfortable support. In addition, the device may be used as standby equipment for disaster relief for seating injured persons in hallways of hospitals or disaster stations. When assistance is available, the patient can be lifted together with the seat to a gurney where he can be wheeled to the X-ray room and then to the room for applying casts.

A patient can be easily pivoted from the position shown in FIG. 10 at the position shown in FIG. 7 in readiness for a cast. Note how the tilted position results in the arm hanging in a dependent attitude and free of the body permitting the application of a cast to all parts of the hand, wrist, forearm and upper arm without meeting interference with the patient's body. It has been further found that with a patient seated on the inclined board, X-rays may be taken of the patient without removing him from the device.

In operation, the torso tilt board is set up from the collapsed position from storage by raising the inclined member to approximately the correct tilted position. The bracing is then moved upwardly about its pivot point until the angle is brought into contact with the adjacent crossmember. The locking means automatically locks the two members together. The inclined member is then extended to the correct length to accommodate the height of the person. The seat is then raised or lowered to the correct angle by loosening the locknuts, moving the wedge along the frame and tightening the locknuts. The patient then sits on the device either in the position shown in FIG. 10 or FIG. 7 according to his injury and for the purpose to be served by the device.

A unique construction locks the bracing to the inclined member. Protrusions 66 and 67 are welded to the angle member 31 at an angle of less than 90° from the bearing of pin 34. The protrusions register with openings 68 and 69 formed in crossmember 24. Similar openings are provided in crossmembers 40. Thus the protrusions and the pin form a wedgelike grip preventing collapse of the board regardless of the way in which the assembly is picked up and carried.

We claim:

1. A torso tilt board to facilitate the treatment care and transportation of patients with serious injuries involving the upper extremities, chest and abdomen comprising a portable device having:

a. a base frame consisting of light weight members

b. a seat member having substantially the width of the average person mounted on said frame at an angle from said base frame for firmly supporting a seated patient;

c. an inclined frame member mounted on said base in angular relation thereto

d. a relatively thin flat rigid rest member having a width substantially the same as the seat mounted on said inclined frame member for infinite sliding and locking adjustment;

e. means locking said inclined member in varying extended positions; and

f. the upper end of said rest member being contoured and positioned at an elevation to cradle beneath the arm of the patient and being formed with a depression in the midportion of the contoured portion to prevent cutting off the circulation of blood to the arm; the depression being about finger size.

2. A torso tilt board as described in claim 1 wherein said inclined member is pivotally mounted on said frame selectably elevatable to different angles of inclination, and means releasably holding said inclined member in said angles of inclination.

3. A torso tilt board as described in claim 2 wherein said seat member is pivotally mounted on said frame and selectably elevatable to different angles of inclination, and means holding said seat member in said angles of inclination.

4. A torso tilt board as described in claim 1 wherein said seat member is extensibly mounted on said frame to accommodate persons of different size, and means locking said seat member in different extended positions.

5. A torso tilt board as described in claim 4 wherein said frame includes a flange having an elongated slot; clamping means carried by said inclined member mounted for sliding registration is said elongated slot for extension of said rest member at different positions; a strut pivotally mounted on said frame; a crossmember angle connected to said strut for selectable locking receipt with said frame member; said seat member being pivotally connected to said frame; and means adjustably raising and locking said seat member in varying elevated positions.

6. A torso tilt board as described in claim 5 wherein: said crossmember angle is formed with a pair of spaced protrusions and an opening spaced at an angle from said protrusions; said inclined member having a crossmember formed with a pair of openings for registration with said protrusions and a third opening; and said locking means including a pin biased to move through said opening in said crossmember angle and said third opening in said crossmember.