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DEP: 2020 DIRECCION DE NUEVAS CREACIONES	EVE: 1 REGISTRO/DEPOSITO/CONCESION/DEPOSITO
TRA: 3 PATENTES DE MODELO DE UTILIDAD	FOLIOS: 5
ACT: 519 PRESENTACION	

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Patente de Invención				Patente de Modelo de Utilidad	X
Vía Nacional	X				
Vía PCT (Fase Nacional)		Capítulo I		Capítulo II	
No. Solicitud Internacional					
Fecha de Presentación Internacional					

Descripción:	Folios 6 a 8 y 14	07/Diciembre/2011
	Folios 32 a 34	13/Febrero/2012
Reivindicaciones:	Folios 32	13/Febrero/2012
Dibujos:	Folios 9 a 13	07/Diciembre/2011
	Folios 35 a 44	13/Febrero/2012

1er Art 45

de personas heridas o discapacitadas. Siempre buscando la integridad tanto del paciente, como de las personas que lo transportan.

Para resolver este problema técnico la solicitud en estudio propone una sábana plegable con manijas en su perímetro.

El objeto de la presente Solicitud se relaciona con la Clasificación Internacional de Patentes (CIP): A 61 G 7/14.

3. De la Solicitud de Patente

Título

El término “*silla*” no refleja el contenido de la solicitud. De acuerdo con la descripción, el capítulo reivindicatorio y los dibujos, el producto reclamado es una sabana plegable y no una silla. Por otro lado, la expresión “*en posición sentados*” se refiere a la forma como se utilizaría el producto reclamado y no incluye algún término que lo describa técnicamente.

En concordancia con lo anterior, se sugiere al solicitante replantear el título de la invención, teniendo en cuenta que debe reflejar de forma breve y concisa el objeto de la solicitud, preferiblemente haciendo referencia al producto reclamado. Un ejemplo de título podría ser: “Sábana portátil plegable para el transporte de discapacitados o heridos”.

Reivindicaciones (Art 30 D 486, Art 22 PCT)

El capítulo reivindicatorio no es claro porque

- 1- No fueron superadas las objeciones realizadas en el oficio No. 1101, toda vez que la estructura de las reivindicaciones no es acorde a lo solicitado en dicho oficio. Se recuerda que cada una de las reivindicaciones se compone de: a) un preámbulo, el cual sirve para situar el objeto de la invención en un contexto técnico; y b) una parte característica, que define lo que se considera novedoso y se desea proteger. Estas dos partes están separadas por la expresión “*caracterizada por*”.

En la solicitud, se muestra solamente un preámbulo y, éste, no está ligado a ninguna reivindicación. Cada una de las reivindicaciones debe tener su propio preámbulo y su propia parte característica.

De acuerdo con lo anterior, se sugiere al solicitante replantear el capítulo reivindicatorio, siguiendo las indicaciones expuestas en el oficio No. 1101 y en el anexo 1 de este documento. Cabe agregar, que el preámbulo debe ser común en todas las reivindicaciones que se incluyan en el capítulo.

- 2- Las expresiones “...se caracterizan por ventajas hacia las personas que van... deslizamientos, etc...” y “La flexión de los miembros...sin posibilidad de traumatismos” de la reivindicación 1. Definen ventajas del producto reclamado, lo cual no es objeto de protección. La forma correcta de definir técnicamente el producto es mediante sus características estructurales (tangibles). Es así que las únicas características técnicas incluida en la reivindicación 1 son “las manijas”.

De igual manera, en la reivindicación 2 no se defina ninguna característica estructural del producto, por lo cual no contiene materia patentable. Fundamentalmente, se enfoca en mencionar otros tipos de productos que se encuentran en el estado del arte, pero que son ajenos a la invención. En las reivindicaciones, solo se deben incluir las

características técnicas del producto reclamado, sin mencionar características, elementos u otros productos, que sean ajenos a éste. Inclusive, la expresión “se desea proteger la plegabilidad y el convertirse en silla” (reivindicación 2; Fl. 32, Párr. 8) no describe las características técnicas que hacen plegable el producto o que lo hacen convertirse en silla. Simplemente expone ventajas y efectos del producto reclamado.

Por lo cual, Se sugiere al solicitante replantear las reivindicaciones, mencionando solamente características estructurales del producto para el cual se solicita protección. Cabe aclarar, que no se protegen, ventajas, efectos, usos, resultados a alcanzar, del producto reclamado o de alguno de sus elementos.

- 3- El capítulo reivindicatorio no tiene números de referencia. Los números de referencia dan claridad a las reivindicaciones, debido a que las características técnicas se podrían identificar con mayor facilidad en los dibujos. Se sugiere al solicitante acompañar cada una de las características técnicas con su correspondiente número de referencia. Éste debe ir ente paréntesis y debe guardar concordancia con lo presentado en la descripción y en los dibujos.

Cabe agregar que en el momento en que el solicitante replantee el capítulo reivindicatorio, se sugiere tener en cuenta que todas las características incluidas deben estar descritas también en la descripción y que no debe caer en ampliación de materia, según los artículos 30 y 34 de la decisión 486.

Descripción (Art 28 D 486)

Se sugiere replantear la descripción, siguiendo las aclaraciones descritas en el anexo 2 de este documento.

4. Determinación del Estado de la Técnica

El estado de la técnica se determinó con base en la fecha de presentación de la solicitud de patente nacional: diciembre 7 de 2011 y se encontraron los siguientes documentos que anticipan el objeto de esta solicitud:

Item	Documento	Título	Fecha de Publicación
D1	US 2006/0150322	‘Patient transfer sheet’	13/julio/2006
D2	US 5'978.989	‘Flexible patient transporter with foot pocket’	09/Noviembre/1999

El documento D1 ¹ divulga una sábana para el transporte de personas discapacitadas, la cual cuenta con manijas que facilitan el levantamiento y la movilización del paciente (Resumen).

El documento D2 ² divulga una sábana para el transporte de pacientes, que contiene una serie de manijas alrededor de su perímetro. Las cuales facilitan la movilización del paciente (Resumen).

1 [http://www.google.com/patents/US20060150322?](http://www.google.com/patents/US20060150322?dq=20060150322&hl=en&sa=X&ei=QzcdUZvRFpDS9ATg0oHYCg&ved=0CDMQ6AEwAA)

[dq=20060150322&hl=en&sa=X&ei=QzcdUZvRFpDS9ATg0oHYCg&ved=0CDMQ6AEwAA](http://www.google.com/patents/US20060150322?dq=20060150322&hl=en&sa=X&ei=QzcdUZvRFpDS9ATg0oHYCg&ved=0CDMQ6AEwAA)

2 [http://www.google.com/patents/US5978989?](http://www.google.com/patents/US5978989?pg=PA4&dq=5978989&hl=en&sa=X&ei=WTcdUaPUJoGK9QSw8oG4CA&ved=0CDYQ6AEwAA#v=onepage&q=5978989&f=false)

[pg=PA4&dq=5978989&hl=en&sa=X&ei=WTcdUaPUJoGK9QSw8oG4CA&ved=0CDYQ6AEwAA#v=onepage&q=5978989&f=false](http://www.google.com/patents/US5978989?pg=PA4&dq=5978989&hl=en&sa=X&ei=WTcdUaPUJoGK9QSw8oG4CA&ved=0CDYQ6AEwAA#v=onepage&q=5978989&f=false)

5. Examen de Patentabilidad (Art 14 D486)

Novedad (Art 16 D486)

La reivindicación 1 consiste en “Las manijas de la silla propuesta se caracterizan por ventajas hacia las personas que van a ejecutar la fuerza al levantar a las las personas discapacitadas momentánea o definitivamente y/o heridas en combate, terremotos, deslizamientos, etc... . Las manijas se sitúan un par arriba y otro abajo. La flexión de los miembros de los transportadores será menos complicada sin ofrecer posibilidad de traumatismos”.

Comparación de las características técnicas **esenciales**, con las del Estado de la Técnica:

Características esenciales	D1	D2
Sábana para el transporte de discapacitados caracterizada por:	Sábana para el transporte de discapacitados caracterizada por:	Sábana para el transporte de discapacitados caracterizada por:
Las manijas se sitúan un par arriba y otro abajo.	Las manijas (12) se sitúan un par arriba y otro abajo (Fig. 1, Párr. [0019]).	Las manijas se sitúan un par arriba (20a y 20c) y otro abajo (20b y 20d) (Fig. 1, Col. 4, líneas 51 a 18).

Las características **esenciales** del producto de la reivindicación 1 habían sido divulgadas previamente en D1. En consecuencia, la reivindicación 1 no es nueva.

6. Conclusión

Los requisitos de Patentabilidad de la presente Solicitud están afectados así:

Item	Documento	Reivindicaciones afectadas	Requisito que afecta
D1	US 2006/0150322	1	Novedad
D2	US 5'978.989	1	Novedad

En cumplimiento del artículo 45 de la Decisión 486 de la Comisión de la Comunidad Andina, se le indica que debe dar respuesta dentro del término de treinta (30) contados a partir de la fecha de notificación de la presente comunicación. En caso de no dar respuesta al presente requerimiento, o si a pesar de la respuesta subsistieran los impedimentos para la concesión, se denegará la patente.

Se invita al solicitante se sirva indicar, si así lo considera, su renuncia al término faltante de treinta (30) para dar respuesta a este requerimiento y presentarla por escrito.

Finalmente, se le recuerda al solicitante que si como respuesta a este requerimiento llegara a modificar el capítulo reivindicatorio y éste contenga más de diez (10) reivindicaciones, no pagará la tasa de modificación voluntaria pero sí la correspondiente al pago por reivindicación adicional.

Notifíquese el presente oficio conforme a lo dispuesto en el numeral 5.2, literal e), del capítulo quinto del título primero de la Circular Única No. 10 de 2001.



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El anterior requerimiento fue notificado por fijación en lista, de fecha 2013-02-26

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US 20060150322A1

(19) **United States**

(12) **Patent Application Publication**
Schrepfer

(10) **Pub. No.: US 2006/0150322 A1**

(43) **Pub. Date: Jul. 13, 2006**

(54) **PATIENT TRANSFER SHEET**

Related U.S. Application Data

(76) Inventor: **Brenda Schrepfer**, Trinidad, CO (US)

(60) Provisional application No. 60/642,680, filed on Jan. 10, 2005.

Publication Classification

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(51) **Int. Cl.**
A61G 7/14 (2006.01)

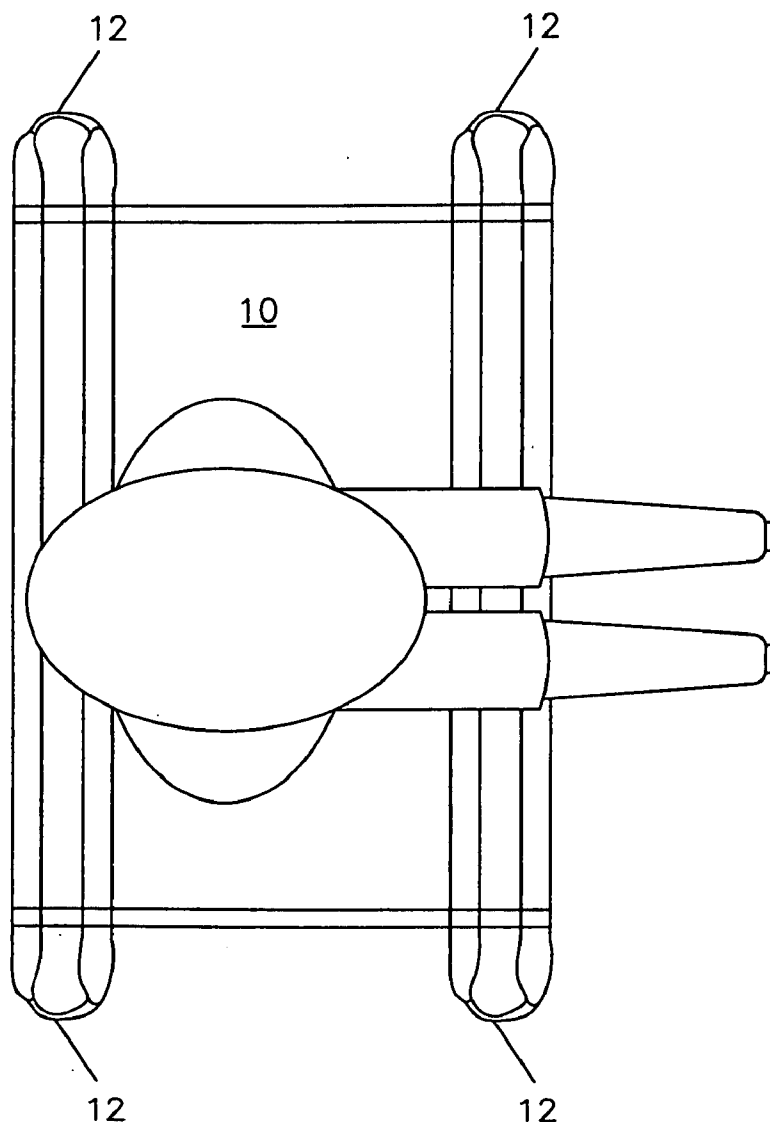
(52) **U.S. Cl.** **5/81.1 T**

(57) **ABSTRACT**

(21) Appl. No.: **11/328,369**

(22) Filed: **Jan. 9, 2006**

A patient transfer sheet comprising a nylon sheet for transferring a patient and having a first pair of loop handles and a second pair of loop handles for supplying and carrying the patient.



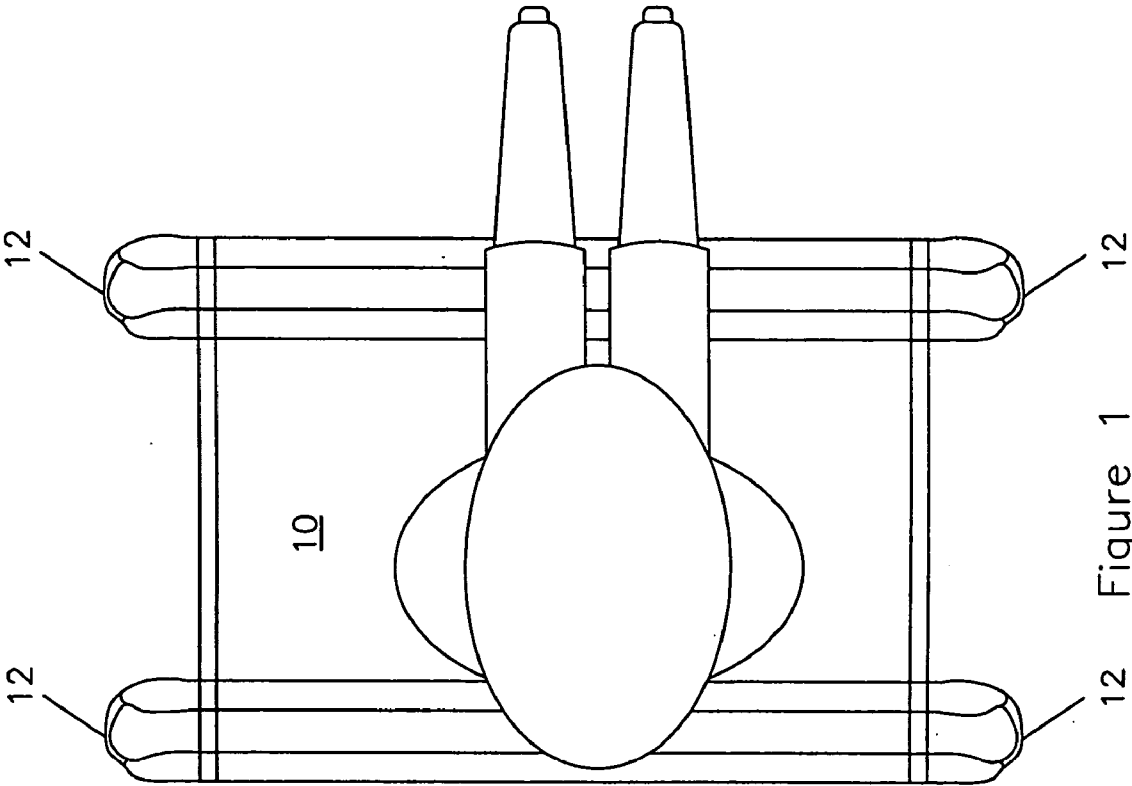


Figure 1

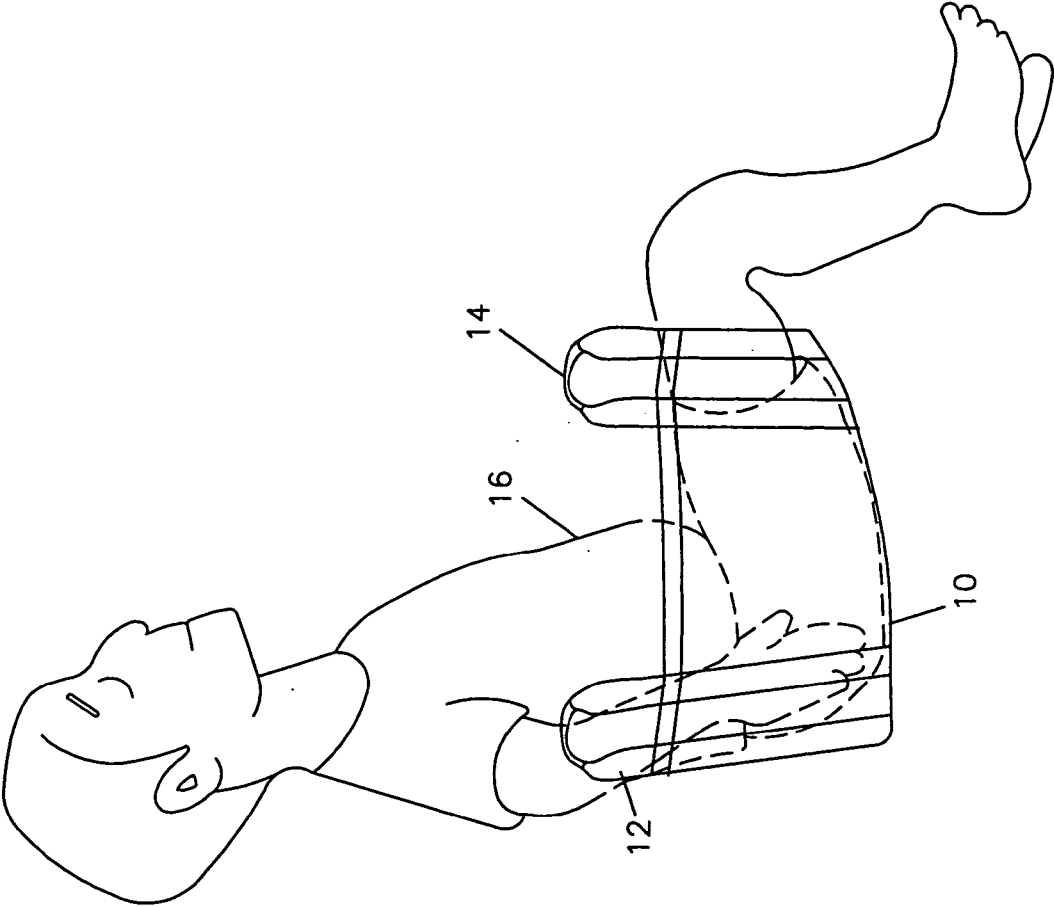


Figure 2

PATIENT TRANSFER SHEET

CLAIM OF PRIORITY

[0001] This application claims benefit to Provisional Application No. 60/642,680, filed on Jan. 10, 2005, entitled "Patient Transfer Sheet," which is incorporated by reference herein in its entirety.

FIELD OF THE INVENTION

[0002] The present invention is directed to the field of patient transfer devices. In particular, the present invention is directed to a novel patient transfer sheet.

BACKGROUND OF THE INVENTION

[0003] Safely moving patients from one location to another can be a dangerous activity for both the patient and medical staff. There have been a number of patents directed to the area of patient transfer devices.

[0004] U.S. Pat. No. 5,442,821 is directed towards a sling for a patient to be transferred including a trough of strong flexible sheet material having a bottom, opposite side walls and opposite end walls. The side walls are connected to the end walls at four corners with a reinforced edge extending along the side walls, end walls and around the four corners. A pair of flexible handle straps are connected to each of the side walls, each handle strap extending beyond the reinforced edge of each side wall and being adjacent one of the corners and a further handle strap is fixed to each of the end walls, each further handle strap being intermediate the corners of each end wall respectively and extending beyond the reinforced edge of each end wall. The invention discloses the ornamental design for a patient transfer apparatus, as shown and described in the patent.

[0005] U.S. Pat. No. 4,716,607 is directed to a patient transfer mat for aiding the moving of a patient who cannot move oneself. The mat includes a center section and a pair of wing sections integrally and hingedly attached thereto and adapted to be placed under the patient. The mat including grasping openings in each end with slots adjacent thereto for securing a strap therethrough to secure the patient to the mat. A pair of mats are placed under the patient to move the patient by sliding or lifting.

[0006] U.S. Pat. No. 5,148,558 is directed to an improved patient transfer sheet device includes a thin first sheet, having a low coefficient of friction for contacting inner surfaces thereof and substantially higher coefficients of friction for other surfaces contacting the first sheet, and a thin second sheet, fixedly connected to the first sheet. The device has a plurality of corner cuffs for releasably securing the device to a first supporting structure. A perforation, medially spaced lengthwise of a patient lying on the device, penetrates the first and second sheets such that the device can be divided and removed from under the patient without rolling or lifting the patient. A first modified transfer device provides a thin band having additional lengthwise perforations such that the device can be placed such that a patient can be transferred sideways in a pre-selected direction and, subsequently, be transferred in the reverse direction. A second modified transfer device provides a thin sheet in an accordion-fold configuration such that the patient can be selectively transferred to either side after being placed on the

device. A third modified transfer device provides a thin sheet in an accordion-fold configuration such that the patient can be transferred to either side and, subsequently, be transferred again to either side.

[0007] U.S. Pat. No. 5,649,329 is directed to a patient carrier unit for a person lifting and transporting device comprising a first and a second section mounted on opposite sides of a vertical shaft and capable to rotate with respect to a holding device. The first section including a belt for supporting the upper body portion of a person and the second section including a belt for supporting the legs of the person, the second section including an electrical drive for changing the vertical position of the leg supporting belt.

[0008] U.S. Pat. No. 4,837,874 is directed to a beam contained in a horizontal plane and suspended by a frame equipped with a lift and column on a vertical axis, with rotation of the beam in said horizontal plane, and equipped with at least one C-shaped body handling tong and preferably a plurality thereof and each adapted to pass beneath and at least partially under a person's body to lift the same, and characterized by instantly adjustable and immediately removable vertical height positioning means for suspending the body handling tongs.

[0009] It is an object of the present invention to provide a novel patient transfer sheet.

[0010] It is a further object of the present invention to provide a system in which a patient can be easily transferred using a transfer sheet.

[0011] It is another object of the present invention to provide a safe, simple, low-cost effective device used to transfer patients from one surface to another.

[0012] It is a further objective of this transfer sheet to reduce the chance of injury to patients and caregivers.

[0013] In a still further object of the present invention, to provide a method for transferring a patient.

SUMMARY OF THE INVENTION

[0014] The present invention discloses a patient transfer sheet comprising: a nylon sheet for transferring a patient, having a first set of loop handles and a second set of loop handles for conveying the patient. Another embodiment of the present invention discloses a patient transfer sheet comprising: a bright nylon sheet for transferring a patient and having a first set of loop handles and a second set of loop handles for lifting and conveying the patient.

[0015] A still further embodiment of the present invention discloses a patient transfer sheet comprising: a substantially rectangular nylon sheet for transferring a patient defining a front portion and a rear portion, a first pair of loop handles affixed to the front portion and a second pair of loop handles affixed to the back for conveying the patient.

[0016] A further embodiment is a method for transferring a patient comprising the following steps: placing a patient to be transferred on a substantially rectangular sheet, having a front and rear portions; applying a first pair of handles on opposite sides of the front of the sheet and a second pair of handles on opposite sides of the rear portion where the handle pairs can be used to lift the patient.

BRIEF DESCRIPTION OF THE FIGURES

[0017] **FIG. 1** is an overhead view of the present invention.

[0018] **FIG. 2** is a prospective view of the invention showing a patient transferred.

DESCRIPTION OF THE PREFERRED EMBODIMENT

[0019] The present invention is described with reference to the enclosed Figures wherein the same numeration is used. Referring to **FIGS. 1 and 2**, the invention comprises a lightweight, washable, sheet **10** made from heavyweight cordura nylon which resists tearing. The device has two pairs **12, 14** of handles constructed from ripping and double 1½" nylon webbing. The dimensions of the webbing may be altered. In a first embodiment, the sheet is substantially square or rectangular. The handles **12, 14** permit the invention to hang conveniently from wheelchair handles to door-knobs making it easily accessible for caregivers. In a preferred embodiment, the handles should comprise a double 1½" nylon webbing. Bright colors make this device easy to locate in a facility and make it attractive to patients.

[0020] As shown in **FIG. 2**, the patient is preferably moved in a sitting position **16**. The transfer sheet reduces the risk of joint and muscle injury, skin tears and bruising to patients as there is no direct lift technique touching the actual patient.

[0021] The present invention can have the following dimensions: for example, 48"×35½" with 4 handles on each side or 40"×72" with 6 handles on each side and one on each end.

[0022] The sheet of the present invention reduces the risk of injury to caregiver due to the ergonomically correct lift especially in challenging and hazardous lift scenarios. The invention is easy for facility staff members, home health providers and family members to use. The device is practical

for the average family to use in a home caretaking situation. The invention suggests a method incorporating the apparatus.

[0023] The present invention has been described with reference to the enclosed figures. It is to be appreciated that the true nature and scope of the present invention is to be determined with reference to the attached claims.

1. A patient transfer sheet comprising:

a nylon sheet for transferring a patient;

a first set of loop handles and a second set of loop handles for conveying the patient.

2. A patient transfer sheet comprising:

a bright substantially rectangular nylon sheet for transferring a patient;

a first set of loop handles and a second set of loop handles for lifting and conveying the patient.

3. A patient transfer sheet comprising:

a substantially rectangular nylon sheet for transferring a patient, said rectangular sheet defining a front portion and a rear portion;

a first pair of loop handles affixed to the front portion; and a second pair of loop handles affixed to the rear portion for conveying the patient.

4. A method for transferring a patient comprising the following steps:

placing a patient to be transferred on a substantially rectangular sheet, having a front and rear portions;

applying a first pair of handles on opposite sides of the front portion of the sheet and a second pair of handles on opposite sides of the rear portion of this sheet where the first and second handle pairs can be used to lift the patient.

* * * * *



US005978989A

United States Patent [19]
Chavez

[11] Patent Number: 5,978,989
[45] Date of Patent: Nov. 9, 1999

[54] FLEXIBLE PATIENT TRANSPORTER WITH FOOT POCKET
[76] Inventor: Manuel Garcia Chavez, 2126 LaMonte La., Houston, Tex. 77018

505103 8/1954 Canada 5/627
2672 10/1918 Netherlands 5/627
468336 7/1937 United Kingdom 5/624
549864 12/1942 United Kingdom 5/628

OTHER PUBLICATIONS

[21] Appl. No.: 09/014,985
[22] Filed: Jan. 28, 1998

“Man—S.A.C.”Product Brochure, 2 pages.
Takashima U.S.A, Rhino Tex Product Specification Sheets, 2 pages.
Value Vinyls, Product Specification Sheets, 3 pages.

[51] Int. Cl.⁶ A61G 1/013; A61G 1/04; A61G 1/044; A61G 1/048
[52] U.S. Cl. 5/627; 5/625; 294/77; 294/140; 294/152
[58] Field of Search 5/627, 625, 628; 294/140, 152, 77

Primary Examiner—Alexander Grosz
Attorney, Agent, or Firm—Wendy K. Buskop; Bayko Gibson et al

[56] References Cited

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2,279,694 4/1942 Martinson 5/627
2,440,712 5/1948 Bickel 294/77
2,489,828 11/1949 Springer 5/625
2,749,957 6/1956 Smith 294/77
2,788,530 4/1957 Ferguson 5/628
2,813,745 11/1957 Frieder et al. 294/77
3,158,875 12/1964 Fletcher 5/627
4,124,908 11/1978 Burns 5/82 R
4,442,557 4/1984 Clemens 5/82 R
4,723,327 2/1988 Smith 5/625
5,121,514 6/1992 Rosane 5/628
5,214,813 6/1993 Gastle et al. 5/625
5,333,335 8/1994 Gastle et al. 5/625
5,701,619 12/1997 Ullman 5/625

FOREIGN PATENT DOCUMENTS

199309 2/1958 Austria 294/152

[57] ABSTRACT

A flexible patient transporter including an oblong PVC fabric sheet having two substantially parallel side edges and two substantially curved end edges. An edge reinforcing web is attached to the sheet with monofilament stitching so that it extends substantially around all edges of the sheet. A pair of end handles is attached to each of the curved end edges of the sheet and a plurality of side handles attached to the side edges of the sheet. Each of the handles is equally spaced around the perimeter of the sheet and includes a PVC tube with a strap extending through the tube and attached at each end to an edge of said sheet. A loop is attached near an apex of at least one of the end edges, and at least one fastener, is secured to each of the side edges of the sheet, said fasteners being adapted to be releasably secured to at least one of the loops, to thereby form a foot pocket at an end of the sheet, which pocket would prevent a patient from sliding out of the transporter.

20 Claims, 5 Drawing Sheets

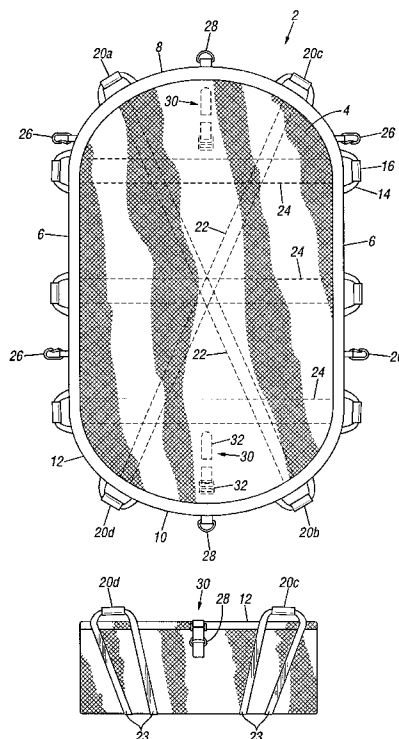


FIG. 1

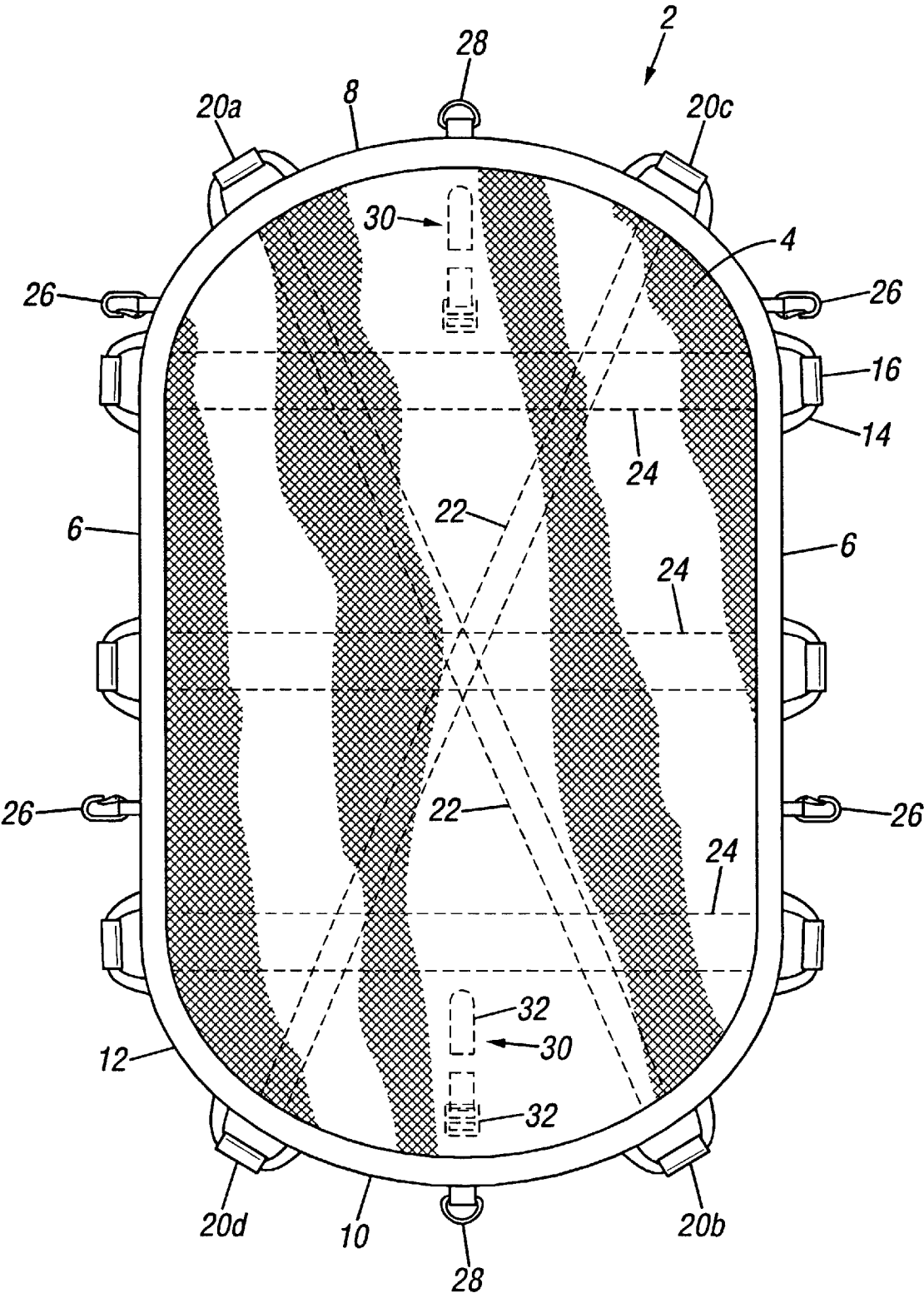


FIG. 2

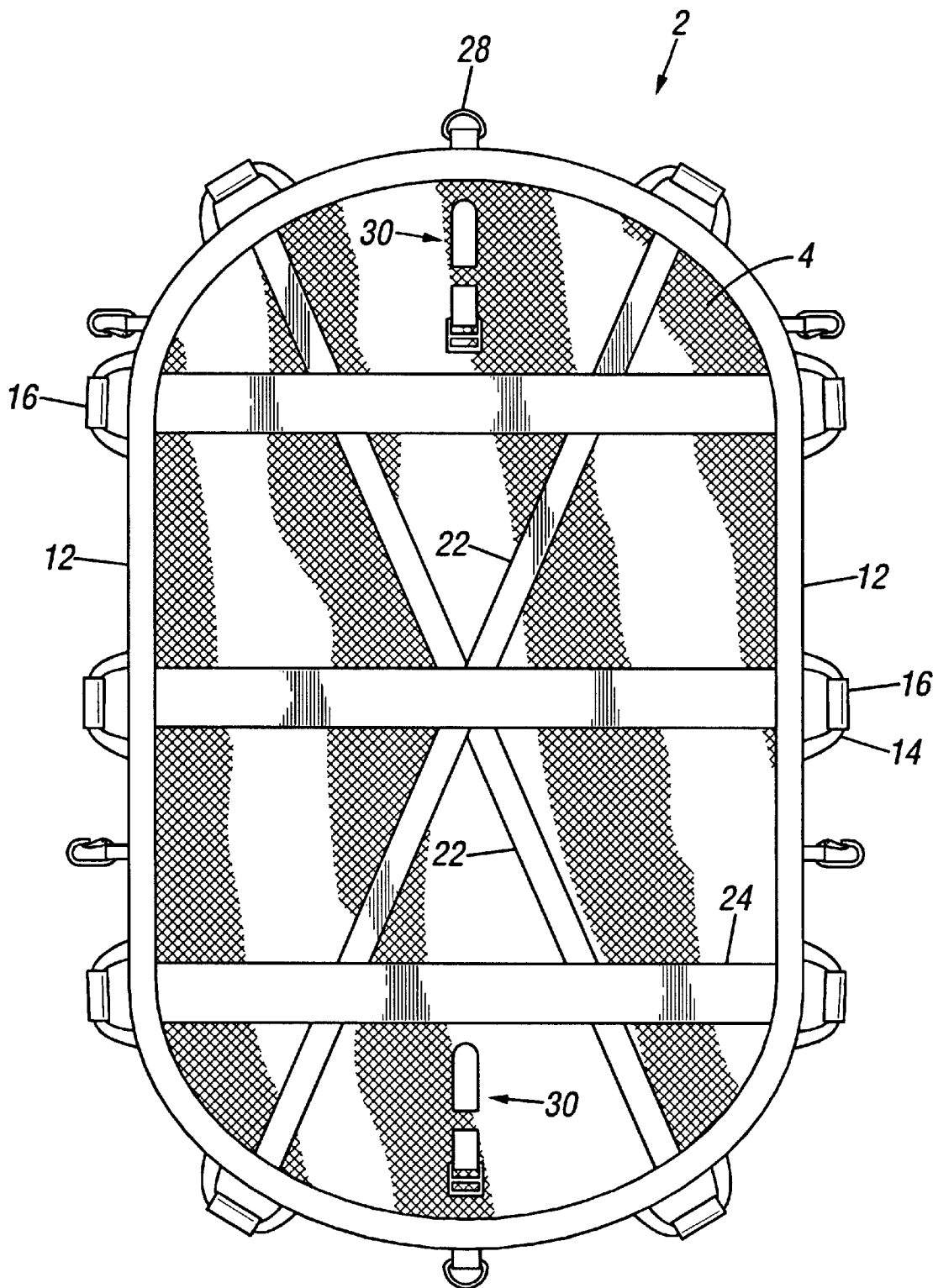


FIG. 3

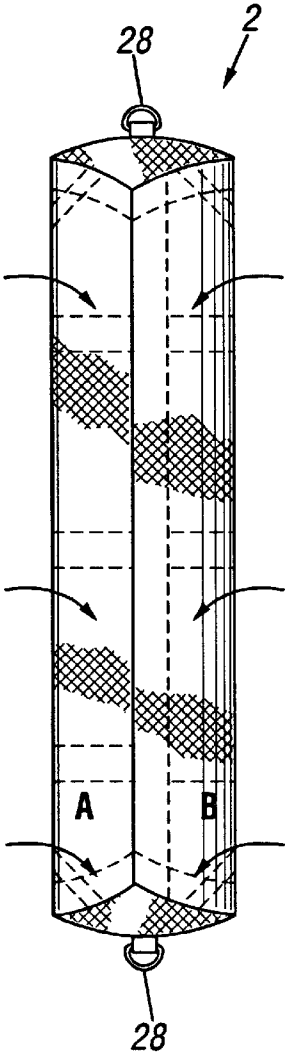


FIG. 4

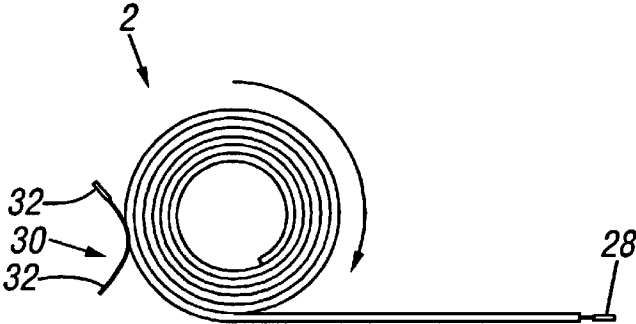


FIG. 5

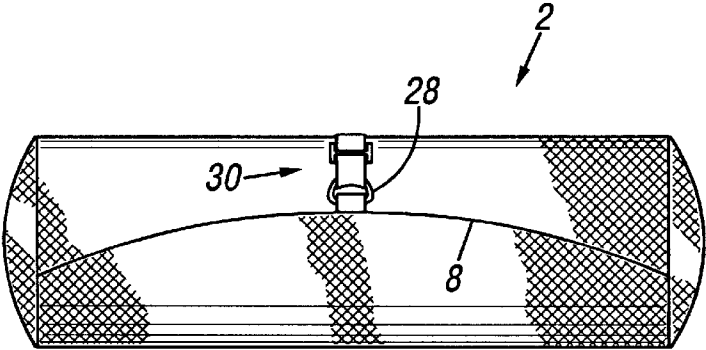


FIG. 6

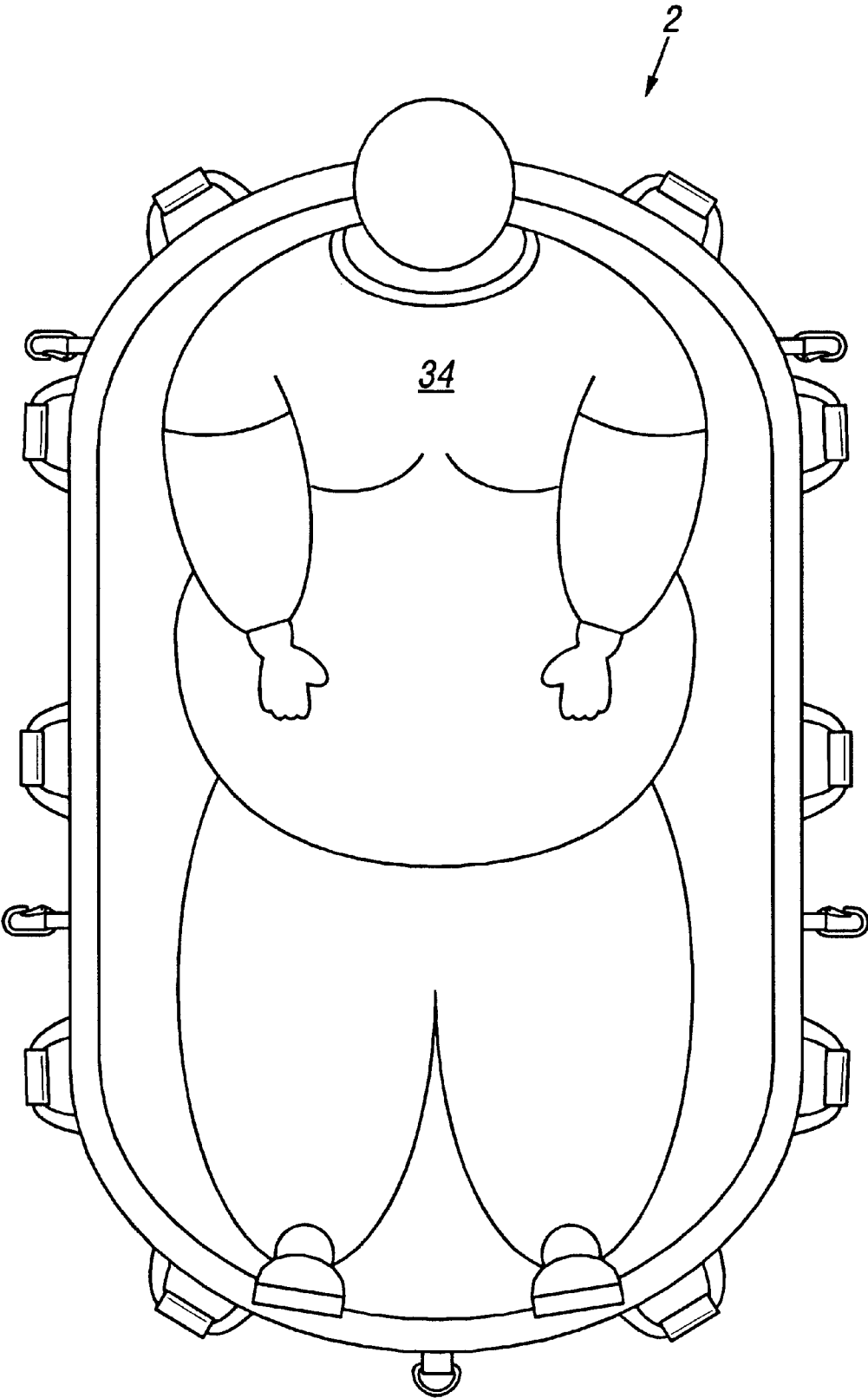


FIG. 7

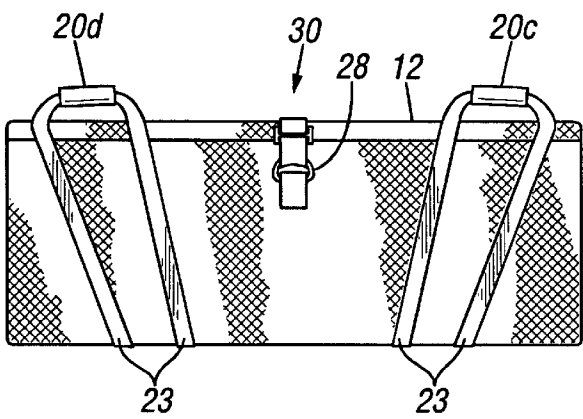


FIG. 8

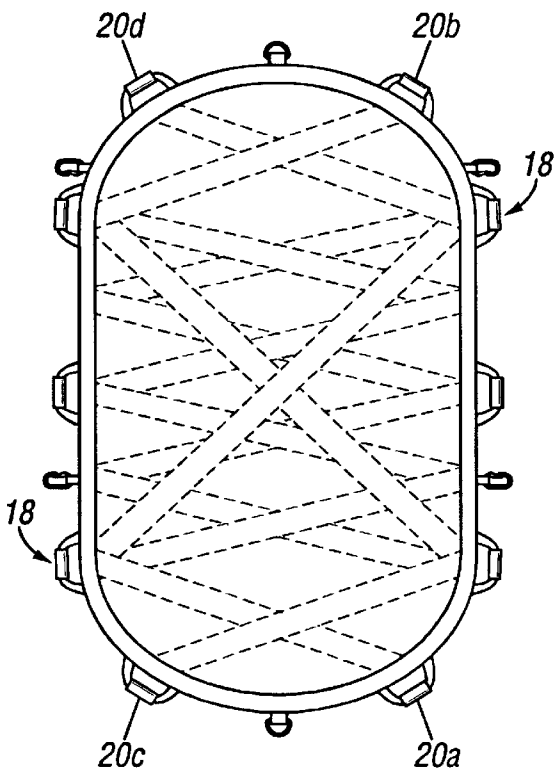
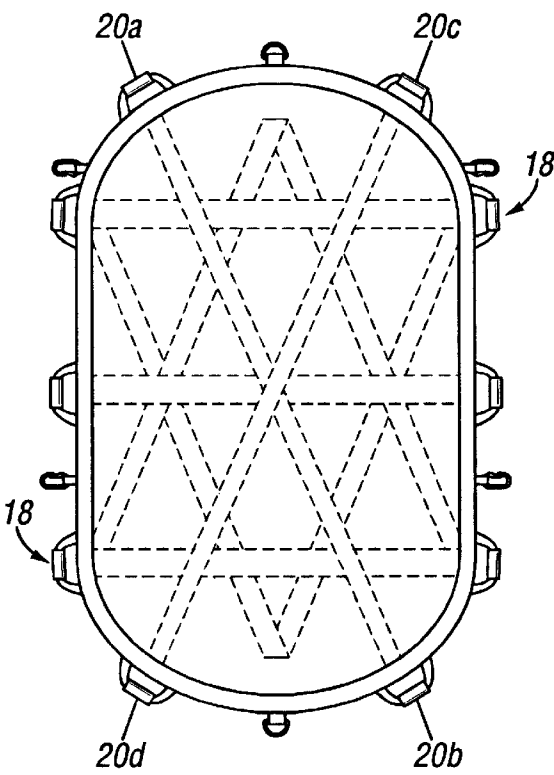


FIG. 9



FLEXIBLE PATIENT TRANSPORTER WITH FOOT POCKET

BACKGROUND OF THE INVENTION

1. Field of the Invention

The present invention generally relates to beds, and, more particularly, to foldable field stretchers.

2. Description of Related Art

It is well known that simple field stretchers formed from canvas stretched between two parallel, rigid shafts can be used for carrying sick, wounded, or dead persons from remote locations in the field. For example, U.S. Pat. No. 4,124,908 discloses a rescue and transportation device which includes breakaway poles extending through slots formed on opposite sides of a flexible bottom. Although such poles can help evacuation workers to lift and support the patient during transport, they also make the device more difficult to store and maneuver in crowded or restricted areas. U.S. Pat. No. 5,701,619 discloses a stretcher with similar drawbacks formed from a cellular plastic material with internal channels under the patient for holding longitudinal glass-reinforced plastic stiffening elements.

U.S. Pat. No. 4,723,327, on the other hand, discloses a patient mover without rigid supports having an integral, one-piece, continuous handle strap that extends around a channel in the perimeter of a rectangular sheet. The handle strap is accessible at each of the four corners of the sheet and is self-adjusting to the patient's position and the carriers' needs. However, since the handles move relative to the patient, this design can be unstable. U.S. Pat. No. 5,214,813 discloses another rectangular stretcher with reinforced hand-hold patches at each corner that include folded flaps for protecting users' hands. However, such stretchers do not always provide adequate support beneath the patient.

U.S. Pat. No. 5,121,514 discloses a rectangular emergency support device with increased rigidity in its weight-bearing portion which includes a unitary, or segmented, support layer of polymeric sheeting. The support layer warps slightly from side to side but resists enveloping or imposing radially directed compression forces on the patient. Hand grips are formed on the device by a length of nylon strapping extending axially through parallel loops on each side of the device.

SUMMARY OF THE INVENTION

The present invention provides a one-piece patient transporter with no removable parts that could otherwise be easily lost in the field. The transporter is flexible for easy maneuvering around corners and through small openings. It is also collapsible, foldable, and rollable for easy and compact storage. It is lightweight, yet capable of carrying heavy loads which are comfortably and evenly distributed to each of the handlers.

The transporter includes at least one PVC fabric sheet having two substantially parallel side edges and two substantially curved end edges. An edge reinforcing web, or other reinforcement, may be attached to the sheet with monofilament stitching so that the reinforcing extends substantially around all edges of the sheet. The transporter also includes a pair of end handles attached to each of the curved end edges of the sheet and a plurality of side handles attached to the side edges of the sheet. Each of the handles may be equally spaced around the perimeter of the sheet and include a strap extending through a PVC tube, or other suitable gripping means, and attached to an edge of said sheet at each end.

Each of the end handles is arranged diagonally, or cater-cornered, to an end handle on an opposite side of an opposite end of the sheet such that crisscrossed end handle reinforcing webs extend between end handles on opposite ends and opposite sides of the sheet. Side handle reinforcing webs are also attached to the sheet and extend, substantially parallel to each other, between side handles on each side edge of the sheet.

The transporter may also include closure clips or fasteners attached at various points around the edges of the sheet and closure rings attached near an apex of each of the top and bottom edges of the sheet. The closure clips and rings may be fastened together at one end to create pockets which fold over the end of the patient and prevent the patient from sliding out of the transporter. Closure straps may be attached to a surface of the sheet, near each of the closure rings, for engaging the nearest closure ring when the transporter is rolled in order to maintain the transporter in a tightly rolled configuration for storage.

BRIEF DESCRIPTION OF THE DRAWINGS

The preferred embodiments of the invention will now be described, by way of example, with respect to the attached drawings where reference numerals have been used to identify the same features in each figure ("FIG."), and

FIG. 1 is a top view of a flexible patient transporter;

FIG. 2 is a bottom view of the patient transporter of FIG. 1;

FIG. 3 is a top view of the patient transporter of FIG. 1 in a folded configuration;

FIG. 4 is a side view of the folded patient transporter of FIG. 3 in a partially-rolled configuration;

FIG. 5 is a front view of the patient transporter of FIG. 4 in a fully-rolled configuration;

FIG. 6 is a top view of a patient on the patient transporter of FIG. 1;

FIG. 7 is an end view of an alternative embodiment of a transporter in a fully-rolled configuration; and

FIG. 8 illustrates a different reinforcing web layout for the transporter shown in FIG. 1; and

FIG. 9 illustrates another different reinforcing web layout for the transporter shown in FIG. 1.

DESCRIPTION OF THE PREFERRED EMBODIMENTS

FIG. 1 illustrates a top view of one embodiment of an innovative patient transporter 2 which may be used to transport humans, animals (such as dolphins), or other loads, and is especially suitable for very heavy or obese patients. The patient transporter 2 includes a substantially non-rectangular sheet 4 having substantially parallel side edges 6, a curved top edge 8, and a curved bottom edge 10. "Nonrectangular" in this context refers to generally oblong, oval, elliptical, and/or egg-shaped. Although the side edges 6 are illustrated in the figures as being substantially straight and parallel, the side edges may also have a radius of curvature which is substantially larger (or infinite for a configuration with straight side edges) than the radius of curvature for the top and/or bottom edges 8 and 10, respectively. The radius of curvature may also gradually change around the perimeter of the transporter 2. Also, the radius of curvature of the top and bottom edges 8 and 10 is not necessarily the same. One of the end edges 8 and 10 may have such a large curvature radius that it is essentially

perpendicular to the side edges 6 so as to form a substantially rectangular end.

As discussed in more detail below with respect to FIG. 6, the non-rectangular oblong, elliptical, or oval shape of the sheet 4, and especially the curvature along at least one of its top or bottom ends, enhances patient comfort by providing an essentially unobstructed peripheral field of view for the patient being transported. A particular advantage of this shape is to provide head support without interfering with an intubated patient's airway. This shape also allows handlers to more easily observe the patient's facial expressions and corresponding vital signs during transport.

The sheet 4 is preferably seven feet long and three and a half to four and a half feet wide. However, other dimensions may also be used with the same ratio of length to width, or a length to width ratio of approximately 2 to 1. A larger sheet may be nine feet long and five feet wide, or other dimensions, with a corresponding ratio of length to width. These dimensions have been found to be most suitable for transporting large, heavy, and/or obese patients.

The sheet 4 may be formed from a canvas, plastic, vinyl, polyvinyl, composite, or other suitable material. The preferred sheet material is strong, flexible, non-conductive, fire-retardant, waterproof, easy to clean, and impervious to bodily fluids so that it can be used in a wide variety of environments. The sheet 4 is preferably formed from a PVC fabric, such as Rhino-Tex™ Product Nos. 1920 61 or 1802 (or their equivalents) vinyl-coated polyester fabrics available from Takashima U.S.A., Inc. of Garden Grove, Calif. Eighteen-ounce fire-retardant laminates and nineteen-ounce coated vinyls, such as those available from Value Vinyls in Arlington, Tex. may also be used.

The edges of the sheet 4 are reinforced with an edge reinforcing web 12 extending continuously around the top, bottom, and side edges of the sheet 4 for preventing tearing or other damage to the edges of the sheet. The edge reinforcing web 12 is preferably a nominal two (1-7/8 to 1-15/16) inches wide, folded over the edges of the sheet 4, and secured to the sheet using a non-absorbent stitching, such as a monofilament or polymonofilament thread. Other conventional means for securing the edge reinforcing web 12 to the sheet 4 may also be used. The edge may also be reinforced by other conventional means such as by ribbing or folding and stitching extra fabric over the edges of the sheet 4.

The webs are preferably formed from an aftermarket polyester seat belt webbing material, or other suitable material, tested to around 5000 pounds with approximately 15% maximum elongation, such as Product No. 575 132, T 1200 (or equivalents) from Narricot Industries, Inc. of Philadelphia, Pa.

Ten handles 14 are preferably evenly spaced around the perimeter of the sheet 4; however, any other number of handles may also be used in any arrangement around the perimeter of the sheet 4. The handles 14 are preferably formed from strips of material similar to the edge reinforcing web 12 and are secured at each end to the edges of the sheet 4 and/or the edge reinforcing web. The handles 14 are preferably secured to the sheet with monofilament or polymonofilament stitching at each end. However, other conventional means for securing the handles to the sheet 4 and/or edge reinforcing web 12 may also be used, such as riveting or fusion bonding.

Each handle 14 includes a grip 16 for providing a relatively uniform and straight gripping surface on the handle. The grips 16 are preferably formed from a stiff tubular material which is as long as the width of a typical hand, and

through which the flexible handle strips can be threaded before being attached to the sheet 4 and/or edge reinforcing web 12. The grips 16 are preferably formed from 1/8-3/4 inch, but preferably 1/2 inch, nominal inside diameter PVC tubing which is approximately 2 1/2-5 inches, but preferably 4 inches, long. The grips 16 may also include a cushioning material for providing additional comfort to the users.

The handles 14 can be categorized as side handles 18 arranged along the side edges 6 of the sheet 4 and end handles 20 arranged along the top and bottom edges 8 and 10, respectively. A pair of end handles 20 is attached to each of the top and bottom curved edges 8 and 10 of the sheet 4. Each of the end handles 20 is arranged substantially cater-cornered, or diagonally (crisscrossed), to an end handle on an opposite side of opposite end of the sheet. In other words, as shown in the figures, the handle 20a is arranged substantially diagonal to the handle 20b and the handle 20c is diagonal to the handle 20d.

As shown in FIGS. 1-3 and 6, a single end handle reinforcing web 22 extends diagonally across the sheet between corresponding end handles 20 for creating an "X" pattern that provides longitudinal support and enhanced load distribution for patients and carriers. Alternatively, two end handle reinforcing webs 23 may extend diagonally between pairs of end handles 20 on opposite ends of the transporter as shown in FIG. 7. In this double end handle reinforcing web configuration each end handle 20 will have a reinforcing web 22 extending from each attachment of the end handles 20 to the sheet 4. The two webs for each end handle 20 will extend, substantially parallel to each other, to the corresponding handle on the opposite side of the opposite end of the transporter 2. This double reinforcing web design permits the option of carrying extremely heavy loads, for example, loads up to and exceeding 1500 pounds. Alternatively, the end handle reinforcing webs may be arranged in a double helix pattern and/or a triple "X" pattern as shown in FIGS. 8 and 9, respectively. The double helix pattern may further include side handle reinforcing webs which are not shown in FIG. 8.

Side handle reinforcing webs 24 extend substantially parallel across the sheet to corresponding side handles 18 for providing axial support and load distribution. As with the end handle reinforcing webs 22, two side handle reinforcing webs 24 may be used for each side handle 16. In such a double side handle web configuration, the side handle reinforcing webs 24 may be parallel to each other, or webs extending between the same side handles may cross approximately half way across the width of the sheet 4. The end handle reinforcing webs 22 and side handle reinforcing webs 24 are preferably formed from two-inch wide (5000 pound test) seat-belt webbing material and secured to be bottom of the sheet 4 using monofilament or polymonofilament stitching, or other suitable means. The handle reinforcing webs 22 and 24 may be secured to one or both surfaces of a sheet 4 with stitching on one or both sides of the sheet.

The handle reinforcing webs 22 and 24 may also be integral with, or formed from the same material, as the sheet 4 and/or sandwiched between layers of material used to form the sheet 4. For example, in a preferred two-sheet ("sheet-web-sheet") embodiment, the end and side handle reinforcing webs 22 and 24 are stitched to the top surface of a bottom sheet. A smooth top sheet, without webbing or stitching, is then secured at its edges on the top surface of the bottom sheet for providing enhanced comfort for a patient lying on top of the smooth top sheet and for making the smooth sheet easier to clean. In another two-sheet ("web-sheet-sheet" or "sheet-sheet-web") embodiment, the reinforcing webs may

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be attached to the bottom surface of the bottom sheet for providing additional patient comfort and also preventing ground abrasion or tearing of the bottom webbed sheet. Padding material may also be provided between the two layers of sheets 4.

A plurality of rigging fasteners 26, such as clips, chocks, rings, and/or carabineers, are secured to the edges of the transporter 2 in order to create a foot pocket for securing the feet of the patient inside the sheet 4 and/or for attaching the transporter to heavy-lifting equipment. Lifting equipment or rigging to secure a patient may also be attached to the handles 18 and 20. In a preferred embodiment shown in the FIGS., one set of fasteners 26 is placed between the side edges 6 and end edges 8 on one end of the transporter 2 and also between side handles on the other end of the transporter. Closure rings or loops 28 are arranged near the apex of each of the top and bottom edges 8 and 10 of the sheet 4 for folding one or both ends of the transporter over the feet of the patient and securing both fasteners 26 to a closure ring 28 on the same end of the transporter 2. The foot pockets help prevent a patient from sliding off the end of the transporter 2. Placing the fasteners 26 at different positions around the perimeter of sheet 4 allows users to create different size foot pockets.

Closure straps 30 on a bottom surface of the transporter 2 may be used for securing the transporter for storage in a compact bundle as discussed in more detailed below with respect to FIGS. 3–5. FIG. 3 is a top view of the patient transporter 2 of FIG. 1 shown in a folded configuration being prepared for storage. In FIG. 3, sides A and B have been folded inward toward the center of the sheet 4 where one side edge 6 may slightly overlap the opposite side edge and the handles 14 are tucked inside the folded bundle. FIG. 4 is a side view of the folded transporter 2 from FIG. 3 being rolled for storage. As shown in FIG. 4, the closure straps 30 may include mating adjustable buckles 32 at their ends. As shown in FIGS. 5 and 7, after the transporter 2 is fully-rolled, the buckles 32 on the closure straps 30 are fastened through one of the closure rings 28 in order to maintain the transporter 2 in a tightly compacted roll for storage. Alternatively, the closure straps 30 may be provided with Velcro-type fasteners or without any type of fastener for simply tying around the roll.

FIG. 6 shows a top view of an obese patient 34 ready for transport on top of the patient transporter 2. FIG. 6 illustrates the clear peripheral view provided to the patient and even distribution of load provided by the shape of the sheet 4.

A patient transporter constructed in the manner described above is expected to support a dead load of at least 760 pounds, for over one minute without visible damage. Such transporters are useful for conveniently transporting large, obese, heavy (300–700 pounds) patients, or other loads, from small crowded rooms to stretchers or Gurneys outside the building.

While the embodiments disclosed above have been discussed with respect to certain drawings, vendors, products, and preferred configurations, this description is intended to be merely illustrative of some of the many useful forms in which the invention might be “reduced to practice,” or used, by one of ordinary skill in the art. The scope of protection which has been awarded for this invention is defined by the subject matter of the following claims.

What is claimed is:

1. A flexible patient transporter, comprising:
a first sheet having two side edges with a first radius of curvature and two end edges with a second radius of

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curvature, said first radius of curvature being larger than said second radius of curvature;

a pair of end handles attached to each of the curved end edges of the sheet, each of said end handles arranged diagonal to an end handle on an opposite side of an opposite end of the sheet, a loop attached near an apex of at least one of the end edges, and at least one fasteners secured to each of the side edges of the sheet said fasteners adapted to be releasably secured to at least one of the loops, to thereby form a foot pocket at an end of the sheet, which pocket would prevent a patient from sliding out of the transporter; and

a pair of end handle reinforcing webs attached to said sheet extending between the end handles on one end of the sheet and corresponding end handles on an opposite side of the other end of the sheet.

2. A flexible patient transporter as claimed in claim 1 wherein said sheet includes a PVC fabric.

3. A flexible patient transporter as claimed in claim 1 wherein said pair of end handle reinforcing webs are arranged in a pattern selected from the group consisting of an X pattern, a triple X pattern, and a double helix pattern.

4. A flexible patient transporter as claimed in claim 3 wherein said reinforcing webs include seat belt webbing.

5. A flexible patient transporter as claimed in claim 1 wherein said two side edges are substantially parallel to each other.

6. A flexible patient transporter as claimed in claim 1 wherein the shape of said sheet is selected from the group consisting of oblong, oval, and elliptical.

7. A flexible patient transporter as claimed in claim 1, further comprising a second sheet secured to a surface of said first sheet and having essentially the same shape as said first sheet.

8. A flexible patient transporter as claimed in claim 1, further comprising a plurality of side handles attached to the side edges of said sheet.

9. A flexible patient transporter as claimed in claim 8 wherein each of said side and end handles includes a strap attached to said sheet at each end and threaded through a grip.

10. A flexible patient transporter as claimed in claim 1, further comprising means for reinforcing at least one edge of the sheet.

11. The flexible patient transporter as claimed in claim 1, further including closure straps attached to a surface of said sheet, said closure straps adapted to maintain said sheet in a rolled configuration.

12. A flexible patient transporter, comprising
a PVC fabric sheet having two substantially parallel side edges and two substantially curved end edges;

a pair of end handles attached to each of said curved end edges of the sheet, each of said end handles arranged diagonal to an end handle on an opposite side of an opposite end of the sheet;

end handle reinforcing webs attached to and crisscrossing the sheet between end handles on opposite ends and opposite sides of the sheet, a loop attached near an apex of at least one of the end edges, and at least one fasteners secured to each of the side edges of the sheet, said fasteners adapted to be releasably secured to at least one of the loops, to thereby form a foot pocket at an end of the sheet, which pocket would prevent a patient from sliding out of the transporter;

a plurality of side handles attached to the side edges of the sheet; and

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side handle reinforcing webs attached to the sheet and extending between side handles across the width of the sheet.

13. A flexible patient transporter as claimed in claim 12, wherein said end handle reinforcing webs are laid out in a pattern selected from the group consisting of a an X pattern, a triple X pattern, and a double helix pattern.

14. A flexible patient transporter as claimed in claim 12, wherein said side handle reinforcing webs are substantially parallel to each other.

15. A flexible patient transporter as claimed in claim 12, further comprising

a first fastener attached near an apex of at least one of the curved edges of the sheet; and

a pair of second fasteners attached to edges of the sheet and equally spaced on either side of said first fastener for connecting with said first fastener and forming a foot pocket at one end of the sheet.

16. A flexible patient transporter as claimed in claim 12, wherein each of said handles includes

a hollow grip; and

a strap extending through said grip and attached at each end to an edge of said sheet.

17. A flexible patient transporter as claimed in claim 12, wherein said webs include seat belt webbing attached to said sheet with monofilament stitching.

18. A flexible patient transporter as claimed in claim 12, wherein said sheet is at least seven feet long and three and a half feet wide.

19. A flexible patient transporter as claimed in claim 18, wherein said sheet has a length to width ratio of 2 to 1.

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20. A flexible patient transporter, comprising:

a PVC fabric sheet having two substantially parallel side edges and two substantially curved end edges;

an edge reinforcing web attached to the sheet and extending substantially around all edges of the sheet;

a pair of end handles attached to each of said curved end edges of the sheet, each of said end handles arranged diagonal to an end handle on an opposite side of an opposite end of the sheet

end handle reinforcing webs crisscrossing the sheet between end handles on opposite ends and opposite sides of the sheet;

a plurality of side handle s attached to the side edges of the sheet;

side handle reinforcing webs attached to the sheet and extending substantially parallel to each other between each side handle on one side edge of the sheet and another side handle on the opposite side edge of the sheet;

each of said handles including a hollow grip and a strap extending through said grip wherein the strap is attached at each end to an edge of said sheet;

a loop attached near an apex of each of the end edges of the sheet;

and a pair of spaced apart fasteners secured to the side edges of the sheet, some of said fasteners adapted to be releasably secured to one of the loops, to thereby form a foot pocket at an end of the sheet, which pocket would prevent a patient from sliding out of the transporter.

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