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Description

Field of the Invention:

This invention relates to improvements in evacuation restraints of the type suitable for positioning under the mattress of a bed in a hospital or other institution housing bed-confined persons.

Background of the Invention:

In our Australian Patent No. 536070 (AU-B 62281/80) we have described an improved evacuation restraint which materially improved the securing of bedridden patients for evacuation purposes. In using evacuation restraints embodying the above invention, the mattress supporting a bed-confined patient is utilised to minimise the disturbance of the patient and to protect the patient during the evacuation procedure.

Further consideration of evacuation procedures has shown that it is advantageous to be able to slide the restraint-confined mattress along the floor, over obstacles or down stairs. The restraint described in our earlier patent has been found to be not entirely suitable for that purpose even though it offered a material improvement over the previously known restraints in the manner in which it confined a patient within a mattress.

To protect restraints of the above type against soiling and to enable it to be accessed in a standard manner to minimise delays in the event of an emergency, the restraint is desirably housed in a plastics envelope of the type described in Australian Patent AU-B 34433/78 (U.S. Patent No. 4,186,453). However, in using packages of this type it has been found that access to the pull handles by means of which the envelope is opened to gain access to the restraint straps requires the mattress to be lifted to an excessive extent whereby the patient may be undesirably disturbed. Furthermore, the package described in the above patent is not entirely convenient to handle during manufacture, marketing and storage prior to use and the cost of manufacture of such packages is relatively high.

Summary of Invention and Objects:

It is an object of the present invention to provide an improved evacuation restraint in which the shortcomings of the prior art restraints discussed above are at least ameliorated. It is the secondary object of the invention to provide a simplified packaging envelope for such evacuation restraints.

Accordingly, the invention provides an evacuation restraint comprising a generally rectangular base sheet (1) of strong flexible material, a generally rectangular support member located centrally

of said base sheet and joined thereto on top of said base sheet, said support member being formed of lightweight non-bulky material having greater rigidity than said base sheet being capable of deformation transversely of the support member, said base sheet extending substantially from either side of said support member to enable the base sheet in use to envelop a patient to be evacuated, strap members secured at least to said base sheet and extending from the sides of the base sheet, said strap members including means for connecting opposite strap members together at at least two longitudinally spaced positions, and strap members extending from at least one end of said base sheet by means of which the restraint may be manipulated during evacuation procedures, said support member providing with said base sheet a smooth relatively rigid base on which the restraint may slide during evacuation procedures.

In a preferred form of the invention, the restraint is enclosed within a protective envelope having means for gaining access to said base sheet and said straps. Preferably the protective envelope includes a base portion and a top portion, said top portion having one or more means for enabling removal of the top portion from the base portion. The top portion is preferably made from a suitable transparent plastics material and the means for enabling access comprises a line of weakening formed in said top portion and one or more gripping handles or tabs secured to said top portion by means of which the top portion may be torn open to expose the base sheet and straps.

The support member preferably comprises a sheet of lightweight corrugated board which is most preferably formed from plastics materials. The board is preferably capable of being folded along at least two transverse lines so that the evacuation restraint and protective envelope may be folded into a more convenient size for marketing and storage purposes.

Brief Description of the Drawings:

One presently preferred form of the invention will now be described with reference to the accompanying drawings in which:

Figure 1 is a perspective view of the restraint in the unfolded position showing a mattress and patient ready to be enveloped;

Figure 2 is a sectional end elevation of the restraint of Figure 1;

Figure 3 shows the restraint in use;

Figure 4 shows the restraint partly folded ready for packaging;

Figure 5 shows the restraint packaged in its envelope;

Figure 6 is a perspective view of the restraint partly opened; and

Figure 7 shows the packaged restraint in the folded condition.

Description of Preferred Embodiment:

Referring firstly to Figures 1 and 2 of the drawings, the restraint embodying the invention will be seen to comprise a generally rectangular base sheet 1 of flexible fabric, such as polyester, which has been treated to be fire resistant, water resistant and relatively friction free, for example by coating or impregnation with Teflon (registered trade mark). A relatively rigid support member 2 is secured centrally to the base sheet 1 by sewing or by adhesive. In the present case, the support member 2 comprises a rectangular sheet 3 of corrugated board formed from plastics material, such as corrugated board sold under the trade mark Corflute, to each end of which small rectangular pieces 4 and 5 are flexibly attached, say by sewing or the like. It will be noted from Figure 1 that the central rectangular portion 3 has its corrugations running longitudinally while the smaller portions 4 and 5 have its corrugations running transversely. Furthermore, the central portion 3 is formed with fold lines 6 and 7 to enable the end portions of 3 and the smaller portions 4 and 5 to be folded inwardly on to the most central portion of 3.

Referring still to Figure 1 of the drawings, webbing straps 12 and 13 are secured by sewing or by adhesive or the like to opposite longitudinal edges of the base sheet 1. The straps 12 and 13 extend beyond the ends of the base sheet 1 and terminate in loops L by means of which the restraint may be handled during an emergency. Strap portions 17, 18 extend from a point of attachment to each strap 12, 13 a short distance (e.g. about 6 cm) from the ends of the sheet 1 to a point of attachment to the end of the sheet 1 at the edge of each smaller portion 4 and 5 by sewing, adhesive or the like. A further length of webbing strap extends transversely across the base sheet 1 at 14 and is formed in small loops 15 and 16 extending from either edge of the base sheet where they are secured by sewing to the side straps 12 and 13. A still further length of webbing 21 extends transversely across the sheet 1 near its lower end and is attached to the side straps 12 and 13. The webbing 21 defines a loop 19 at the right hand side of the sheet 1 and has a wire loop connector 23 of known construction secured thereto at the other end. A further strap 20 is attached to the loop 15 and has a similar adjustable wire loop connector 22 attached thereto. The connectors 22 and 23 are adapted to engage the loops 16 and 19 respectively, as shown most clearly in Figure 3 of the drawings, to cause a mattress

and patient supported on the restraint to be enveloped for evacuation purposes.

To enable the restraint to be conveniently stored in a protective package, the side portions of the base sheet 1 and the restraint straps 12, 13, 14 and 21 are folded inwardly to the centre of the support member 2 and are then folded back on top of the inwardly folded portions. The end portions, including portions 4 and 5, are folded inwardly over the folded portions and the end portions of the straps 12 and 13 are tucked under the folded end portions so that the loops L are exposed at the ends of the folded restraint. The folding of the restraint is shown most clearly in Figure 4 of the drawings. The restraint is then ready to be packaged in its protective envelope, as further described below. To enable the side portions of the base sheet to be readily unfolded, additional gripping loops 24 and 25 are secured centrally to the underside of each edge of the base sheet 1, as shown in Figures 3 and 4 of the drawings. These loops 24 and 25 also assist in the evacuation procedures since the restraint may be centrally gripped thereby.

Referring now to Figures 5, 6 and 7 of the drawings, the protective envelope for the restraint will be seen to comprise a base portion 27 of suitable plastics material which is either treated with a material which causes the material to be slightly sticky, or "non-slip" in character, or is made from a "non-slip" plastic to retain its position under a mattress in use and so that the base portion 27 tends to stay in position as the restraint is removed therefrom. A clear plastics top portion 28 is secured by heat sealing around the periphery of the bottom portion 27 and a central panel 29 of the top portion 28 is removable by tearing along a weakening line 30 formed during the heat sealing process. To assist in the removal of the panel 29, handles 31 are heat welded to each corner of the panel 29 at either end, for example, as shown in Figure 5 of the drawings. For instructional purposes, one or more of the handles 31 may be printed with a replica of a hand to show how the handles are to be gripped when the panel is to be removed. Each handle is secured along a substantial portion of each corner of the panel 29 to ensure that the panel will tear away along the line 30 when the handles 31 are pulled.

For transport and storage purposes, the package restraint is able to be folded along the lines 6 and 7 to a more convenient size as shown in Figure 7 of the drawings.

In use, the packaged restraint is stored centrally under the mattress M supporting a bed-confined patient P. In the event of an emergency, the operator performing the evacuation reaches under the mattress and grips one or more of the handles

31 to tear the panel 29 from the protective envelope along the weakening line 30. The loops L at the ends are pulled and the diagonal portions 17, 18 assist in unfolding the portions 4 and 5 and the attached portions of the sheet 1. As shown in Figure 6, access is thereby gained to the handle 25 and the folded edges of the base sheet 1 may be moved by pulling the handles 24 and 25 sideways thereby giving access to the loops 16 and 19 and the straps 20 and 21. The connectors 22 and 23 are then engaged with the loops 16 and 19 and the lengths of the straps 20 and 21 adjusted to bring the mattress M into an enveloping relationship with the patient P, as shown in Figure 3 of the drawings. The patient P may then be evacuated by means of the loops L, 24 and 25.

Since the support member 2 provides a relatively rigid flat surface covered by the base sheet 1, the restraint is able to slide over floors, stairs or obstructions, assisted by the low-friction coating on the base sheet 1. Furthermore, since the base sheet 1 almost encloses the mattress M and patient P, additional protection is provided in the event that fire or water are encountered. Thus, the restraint embodying the present invention provides a significant advance over the prior art restraints and provides even further advantages when contained in the improved protective envelope described above.

Claims

1. An evacuation restraint comprising a generally rectangular base sheet (1) of strong flexible material, a generally rectangular support member (2) located centrally of said base sheet (1) and joined thereto on top of said base sheet, said support member being formed of lightweight non-bulky material having greater rigidity than said base sheet being capable of deformation transversely of the support member, said base sheet (1) extending substantially from either side of said support member (2) to enable the base sheet in use to envelop a patient to be evacuated, strap members (12, 13, 14, 17, 18, 20, 21) secured at least to said base sheet (1) and extending from the sides of the base sheet (1), said strap members including means (16, 19, 22, 23) for connecting opposite strap members (12,13) together at at least two longitudinally spaced positions, and strap members (12,13) extending from at least one end of said base sheet (1) by means of which the restraint may be manipulated during evacuation procedures, said support member (2) providing with said base sheet a smooth relatively rigid base on which the restraint may slide during evacuation procedures.

2. The restraint of claim 1, wherein said support member (2) comprises a sheet of lightweight corrugated board (3) the corrugations of which extend longitudinally of the restraint.
3. The restraint of claim 2, wherein said corrugated board (3) is formed from plastics material.
4. The restraint of claim 2 or 3, wherein said support member (2) comprises a central portion (3) and separate rectangular portions (4,5) flexibly attached to said central portion (3) at either end thereof.
5. The restraint of claim 4 when appended to claim 3, wherein the corrugations of said separate rectangular portions (4,5) extend at right angles to the corrugations in said central portion (3).
6. The restraint of any preceding claim, wherein said strap members include two straps (12,13) extending longitudinally of said base sheet (1) and attached thereto adjacent each longitudinal edge thereof, each strap being formed into a hand loop (L) at at least one end, bracing straps (17,18) extending between said straps at a position spaced from each end of said base sheet (1) to said base sheet (1) and/or said support member (2).
7. The restraint of any preceding claim, further comprising a protective envelope (27,28) enclosing said restraint and having means (30,31) for gaining access to said base sheet (1) and said strap members.
8. The restraint of claim 7, wherein said envelope includes a base portion (27) and a top portion (28), said top portion (28) having one or more means for enabling removal of said top portion (28) from said base portion (27).
9. The restraint of claim 8, wherein said top portion (28) is made from a transparent plastics material and the means for enabling access comprises a line of weakening (30) formed in said top portion (28) and one or more gripping handles (31) or tabs secured to said top portion (28) by means of which the top portion (28) may be torn open to expose the base sheet (1) and said strap means.

Patentansprüche

1. Rettungstrage, die eine im wesentlichen rechteckige Grundlage (1) aus starkem biegsamen

Material umfaßt, die ein im wesentlichen rechteckiges, in der Mitte unter der Grundlage (1) angeordnetes und mit diesem, und zwar oberhalb dieser Grundlage befestigtes Stützteil (2) umfaßt, wobei das Stützteil aus leichtem, unsperrigem Material gebildet ist, das eine größere Steifigkeit als die in Querrichtung des Stützteils verformbare Grundlage aufweist, und wobei die Grundlage (1) sich im wesentlichen von jeder Seite des Stützteils (2) erstreckt, um es zu ermöglichen, daß die Grundlage im Gebrauch einen zu rettenden Patienten umhüllt, die zumindest an der Grundlage (1) befestigte und sich von den Seiten der Grundlage (1) erstreckende Riementeile (12, 13, 14, 17, 18, 20, 21) umfaßt, wobei die Riementeile Einrichtungen (16, 19, 22, 23) zum Verbinden von gegenüberliegenden Riementeile (12, 13) an wenigstens zwei in Längsrichtung beabstandeten Stellen aufweisen, und die Riementeile (12, 13) umfaßt, die sich von wenigstens einem Ende der Grundlage (1) erstrecken und durch die die Trage während der Rettungsaktionen gehandhabt werden kann, wobei das Stützteil (2) zusammen mit der Grundlage eine weiche, verhältnismäßig steife Basis bildet, auf welcher die Trage während der Rettungsaktionen gleiten kann.

2. Trage nach Anspruch 1, bei der das Stützteil (2) eine Lage einer leichten gewellten Platte (3) umfaßt, deren Wellen sich in Längsrichtung der Trage erstrecken.
3. Trage nach Anspruch 2, bei der die gewellte Platte (3) aus Kunststoffmaterial ausgebildet ist.
4. Trage nach Anspruch 2 oder 3, bei der das Stützteil (2) einen mittleren Abschnitt (3) und getrennte rechteckige Abschnitte (4, 5) umfaßt, die biegsam an dem mittleren Abschnitt (3) an jedem Ende desselben befestigt sind.
5. Trage nach Anspruch 4, wenn diese der nach Anspruch 3 hinzugefügt wird, bei der sich die Wellen der getrennten rechteckigen Abschnitte (4, 5) im rechten Winkel zu den Wellen in dem mittleren Abschnitt (3) erstrecken.
6. Trage nach einem der vorherigen Ansprüche, bei der die Riementeile zwei Riemen (12, 13) umfassen, die sich in Längsrichtung der Grundlage (1) erstrecken und an dieser an jeder ihrer Längsseiten anliegend befestigt sind, wobei jeder Riemen an zumindest einem Ende als Handschleife (L) ausgebildet ist, und wobei sich zwischen den Riemen an einer

Stelle, die von jedem Ende der Grundlage (1) beabstandet ist, Strebriemen (17, 18) zu der Grundlage (1) und/oder dem Stützteil (2) erstrecken.

7. Trage nach einem der vorherigen Ansprüche, die weiter eine Schutzhülle (27, 28) umfaßt, die die Trage umschließt und die Einrichtungen (30, 31) zum Ermöglichen des Zugriffs zu der Grundlage (1) und den Riementeilen aufweist.
8. Trage nach Anspruch 7, bei der die Hülle einen Grundabschnitt (27) und einen Oberabschnitt (28) umfaßt, wobei der Oberabschnitt (28) eine oder mehrere Einrichtungen zum Ermöglichen des Entferns des Oberabschnitts (28) von dem Grundabschnitt (27) aufweist.
9. Trage nach Anspruch 8, bei der der Oberabschnitt (28) aus einem durchsichtigen Kunststoffmaterial hergestellt ist und bei der die Einrichtung zum Ermöglichen des Zugriffs eine in dem Oberabschnitt (28) ausgebildete linienförmige Schwächung (30) und einen oder mehrere an dem Oberabschnitt (28) befestigte Griffe (31) oder Schlaufen umfaßt, durch die der Oberabschnitt (28) aufgerissen werden kann, um die Grundlage (1) und die Riemen-einrichtungen offenzulegen.

Revendications

1. Civière d'évacuation comprenant de façon générale une plaque de base rectangulaire (1) faite dans une matière flexible résistante, une pièce de support généralement rectangulaire (2) située au centre de ladite plaque de base (1) et réunie à celle-ci sur le dessus de ladite plaque de base, ladite pièce de support étant formée d'un matériau non volumineux léger ayant une rigidité supérieure à celle de ladite plaque de base capable de se déformer dans le sens transversal de la pièce de support, ladite plaque de base (1) s'étendant essentiellement des deux côtés de ladite pièce de support (2) pour permettre à la plaque de base lors de l'utilisation, d'envelopper un patient à évacuer, des pièces de sangles (12, 13, 14, 17, 18, 20, 21) fixées au moins à ladite plaque de base (1) et s'étendant à partir des côtés de la plaque de base (1), lesdites pièces de sangles comprenant des dispositifs (16, 19, 22, 23) pour relier des pièces de sangles opposées (12, 13) ensemble sur au moins deux positions espacées longitudinalement, et des pièces de sangles (12, 13) s'étendant à partir d'au moins une extrémité de ladite plaque de base (1) au moyen desquelles la civière peut

- être manipulée pendant les procédures d'évacuation, ladite pièce de support (2) fournissant avec ladite plaque de base une base lisse relativement rigide sur laquelle la civière peut glisser pendant les procédures d'évacuation. 5
2. Civière selon la revendication 1, dans lequel ladite pièce de support (2) comprend une plaque légère en carton ondulé (3) dont les ondulations s'étendent dans le sens longitudinal de la civière. 10
3. Civière selon la revendication 2, dans laquelle ledit carton ondulé (3) est formé à partir d'une matière plastique. 15
4. Civière selon les revendications 2 ou 3 dans laquelle ladite pièce de support (2) comprend une partie centrale (3) et des parties rectangulaires séparées (4 5) fixées de façon flexible à ladite partie centrale (3) aux deux extrémités de celle-ci. 20
5. Civière selon la revendication 4 lorsqu'elle est annexée à la revendication 3, dans laquelle les ondulations desdites parties rectangulaires séparées (4, 5) s'étendent à angle droit par rapport aux ondulations dans ladite partie centrale (3). 25
6. Civière selon l'une quelconque des revendications, dans laquelle lesdites pièces de sangles comprennent deux sangles (12, 13) s'étendant dans le sens longitudinal de ladite plaque de base (1) et fixée à celle-ci de façon adjacente à chaque bord longitudinal de celle-ci, chaque sangle ayant une boucle pour la main (L) au moins à une extrémité, des sangles de soutien (17, 18) s'étendant entre lesdites sangles à partir d'une position distante de chaque extrémité de ladite plaque de base (1) à ladite plaque de base (1) et/ou ladite pièce de support (2). 30
7. Civière selon l'une quelconque des revendications précédentes, comprenant en outre une enveloppe de protection (27, 28) entourant ladite civière et ayant un dispositif (30, 31) pour avoir accès à ladite plaque de base (1) et auxdites pièces de sangles. 35
8. Civière selon la revendication 7, dans laquelle ladite enveloppe comprend une partie inférieure (27) et une partie supérieure (28), ladite partie supérieure (28) ayant un ou plusieurs dispositifs permettant de séparer ladite partie supérieure (28) de ladite partie inférieure (27). 40
9. Civière selon la revendication 8, dans laquelle ladite partie supérieure (28) est fabriquée en matière plastique transparente et le dispositif permettant d'avoir accès comprend une ligne de fléchissement (30) formée dans ladite partie supérieure (28) et une ou plusieurs poignées (31) ou des attaches fixées à ladite partie supérieure (28) grâce auxquelles la partie supérieure (28) peut être déchirée pour découvrir la plaque de base (1) et ledit dispositif de sangles. 45
- 50
- 55

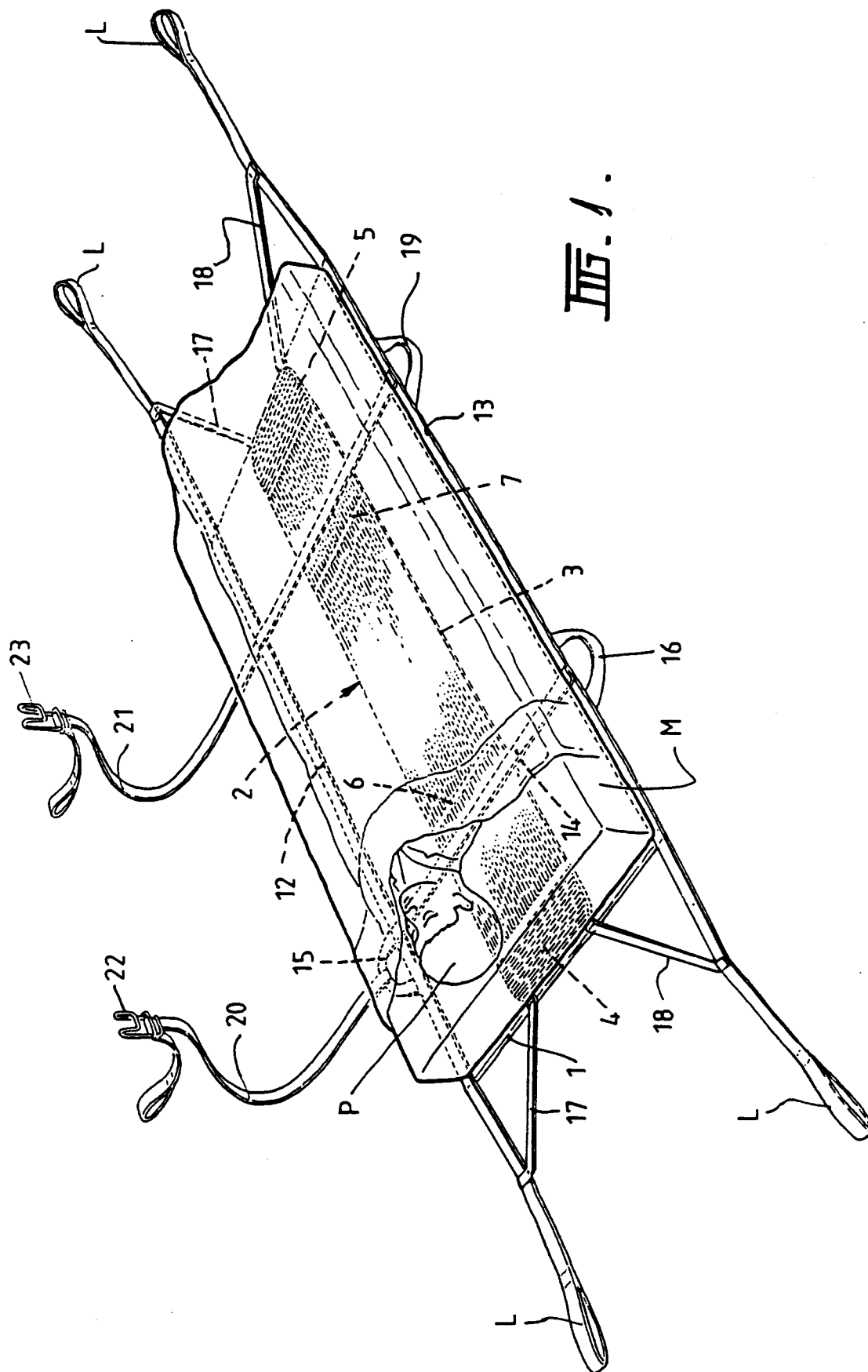
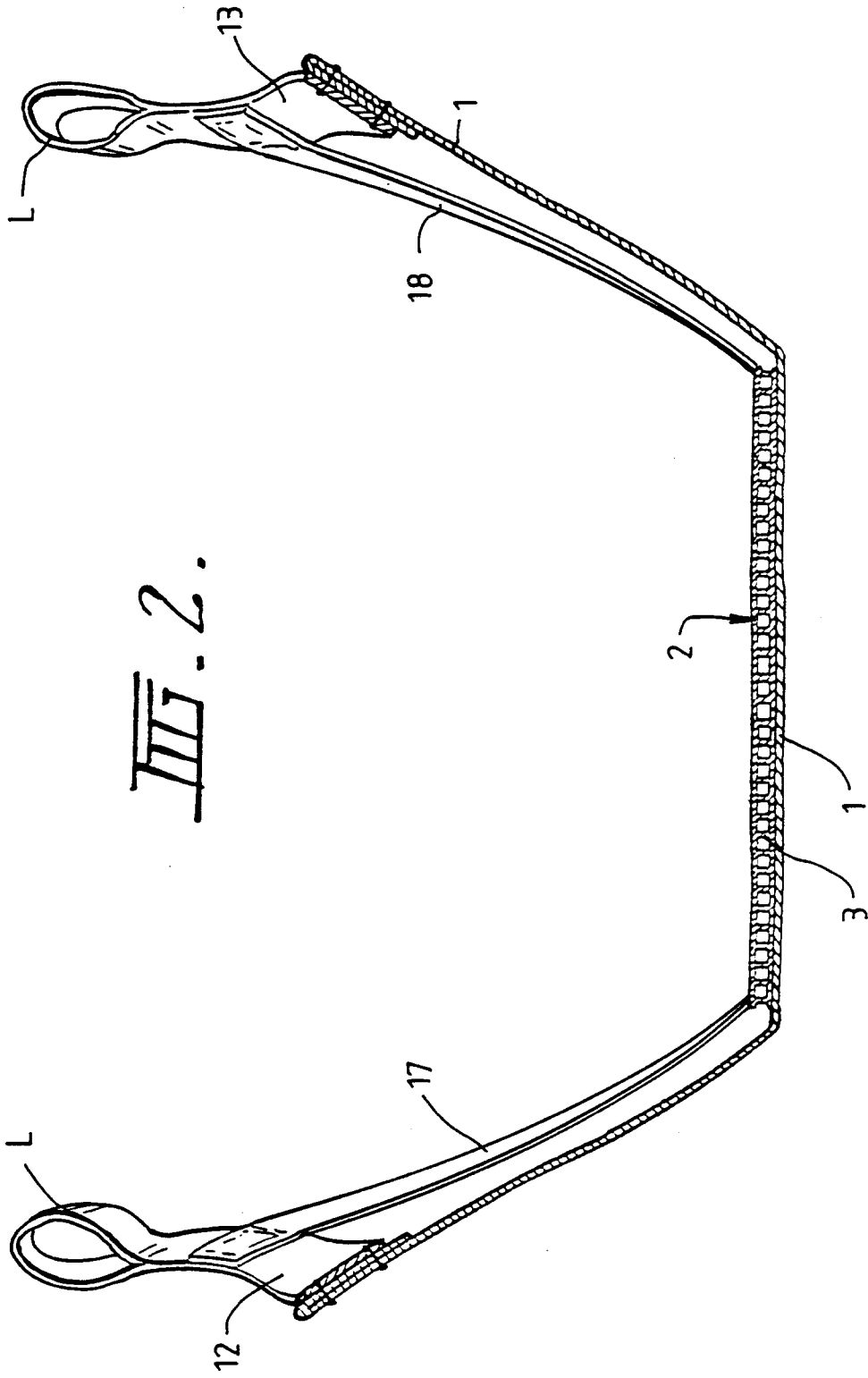


Fig. 1.



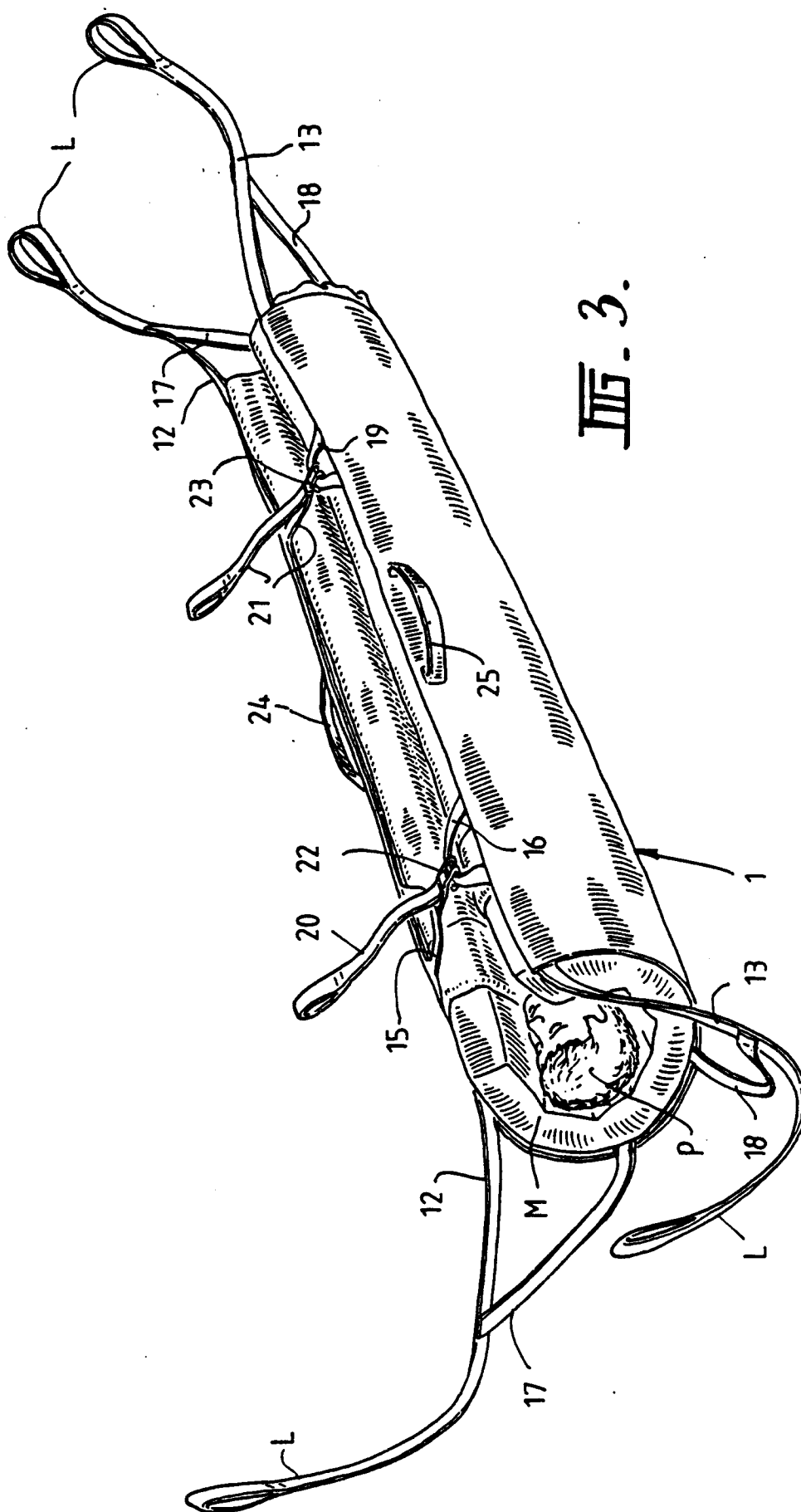


Fig. 3.

