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(54) **INFLATABLE SYSTEM FOR ENABLING POSTURAL CHANGES OF PATIENTS IN A CLINICAL BED OR THE LIKE**

(57) The invention consists of a basically laminar body (1), preferably made of textile fabric, in which two chambers (5) are defined by an intermediate stitch line (3) and by two lateral stitch lines (4), an inflatable pillow (6) with its corresponding inflating valve (7) being located inside each of said chambers (5) in such a way, that from a rest position in which the system adopts a flat configuration, inflation of one of the two pillows (6) pro-

vokes pivoting or a postural change of the patient to the opposite side of the bed and vice versa. The width of the chambers (5) matches that of the bed and the chambers project beyond the edges of the bed in broad segments that are provided with fixing means to the railings (9) of the bed with the purpose of maintaining one of the chambers and then the other chamber conveniently raised while the bed sheets are being changed.

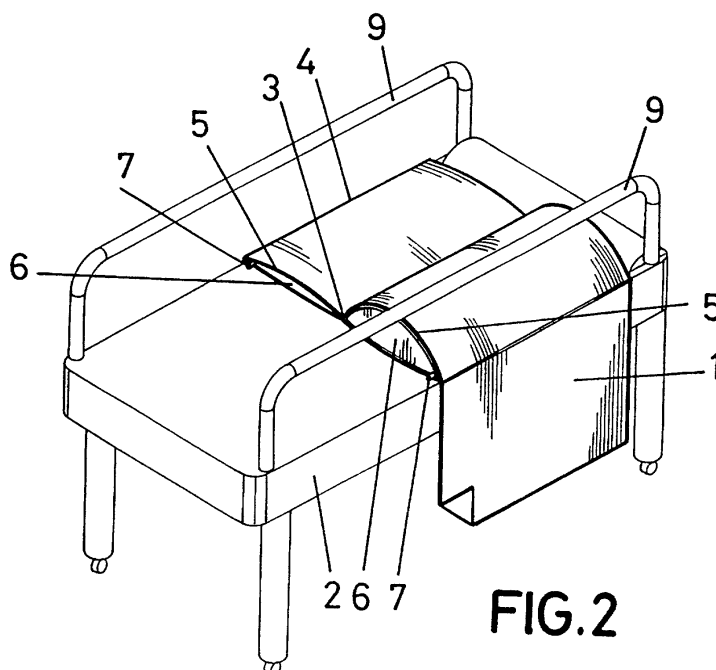


FIG.2

Description

OBJECT OF THE INVENTION

[0001] The present invention relates to an accessory for a hospital bed or the like, specifically an undersheet, that considerably simplifies changing the posture of the patient, both as regards the comfort of the patient and the ease of handling by nursing staff, preventing over-exertion that can result in back injuries.

[0002] The object of the invention thus relates to an undersheet allowing a simple mobilisation of the patient when changing his/her posture on the bed, whether to prevent pressure ulcers due to long periods in the same posture or to facilitate changing the bed linen without removing the patient from the bed.

BACKGROUND OF THE INVENTION

[0003] It is well known that when a patient must remain in the same position for extended periods of time the pressure of the bed against the body produces ulcers, an obviously undesirable condition.

[0004] Anti-ulcer mattresses are known that address this problem; however, these are only applicable to patients who always remain in a decubitus supine position.

[0005] Also known are very sophisticated liquid silicone beds, which constitute a very complex solution for patient mobilisation operation with the corresponding financial cost.

[0006] Because of this, currently in the vast majority of cases the patients are mobilised in a completely natural manner, specifically by the nursing staff using physical force to turn over the patient, who is held by the shoulders and legs until resting on his/her side, placing a pillow as desired on the side to change the pressure areas and prevent the aforementioned ulcers.

[0007] This means that, in addition to requiring a considerable physical effort on the part of the nursing staff, these may suffer back injuries due to the postures required to carry out these efforts, especially when the patient is particularly heavy.

DESCRIPTION OF THE INVENTION

[0008] The undersheet of the invention solves the aforementioned problems in a fully satisfactory manner, allowing posture changes of the patient almost without any physical effort by the nursing staff, all of this by means of a structurally simple and functionally efficient solution.

[0009] For this purpose and more specifically, said undersheet consists of a basically laminar body made of a textile material and in which are defined two chambers in the central area, laterally adjacent to each other, that are open on the ends corresponding to the longitudinal axis of the bed and are defined by three longitudinal seams.

[0010] Each of these chambers is complemented by an pillow that can be inflated by the corresponding valve, so that with the undersheet placed beneath the patient, when one of the inflatable pillows is inflated its increase in volume causes the body of the patient to turn in the opposite direction, and vice versa.

[0011] The pillows can be inflated by any suitable pressure source, such as pressurised air, pressurised oxygen or any other non-flammable gas of those usually available in a hospital environment.

[0012] According to another characteristic of the invention, the aforementioned laminar body that constitutes the undersheet, which has a longitudinal extension substantially equal to that of the upper body of the patient, is considerably oversized with respect to the width of the bed, and is provided on the sectors at its ends lacking the aforementioned chambers with fastener strips made of Velcro or a similar type, which with the aid of the bed railings, and specifically in each case with the railings on the opposite side of the bed, allow retaining the patient in a stable position first on one side of the bed and then on the other side in order to change the bed linen also with great ease.

DESCRIPTION OF THE DRAWINGS

[0013] As a complement of the description being made and in order to aid a better understanding of the characteristics of the invention, according to an example of a preferred embodiment, the description is accompanied by a set of drawings which form an integral part of the description and where for purposes of illustration only and in a non-limiting sense the following is shown:

Figure 1 shows a schematic perspective view of an undersheet for posture changes of patients made in accordance with the present invention, suitably placed on the mattress of a bed, in which the complementary inflatable pillows are shown in the initial assembly position on the corresponding chambers and in a deflated situation.

Figure 2 shows a situation similar to that of the previous figure, with the undersheet duly mounted on a bed and with one of the inflatable pillows in an inflated situation.

Figure 3 shows a bottom plan view of the undersheet fully extended.

Figures 4 and 5 show, finally, two rear elevation views of a bed wherein the undersheet is shown in the two positions it must adopt consecutively to facilitate changing the bed linen.

PREFERRED EMBODIMENT OF THE INVENTION

[0014] In view of the figures, it can be seen that the undersheet of the invention comprises a laminar body (1) with a width that is considerably greater than that of the bed (2) on which it is placed, such that its ends, cor-

responding to the label (1), will hang considerably off the sides of said bed (2), as shown particularly in figure 2, with said laminar body, at least in a wide central sector corresponding to the width of the bed (2), being provided with a double wall that, together with an intermediate seam (3) and two side seams (4), define two chambers (5) that are open towards the head and foot of the bed (2) and are meant to house corresponding inflatable pillows (6) provided with respective inflation valves (7), to which are coupled the corresponding tubes for introducing and extracting a suitable fluid, such as air, oxygen or another non-flammable gas obtained from a suitable pressurised source.

[0015] The pillows (6) are introduced in the corresponding chamber (5) deflated, and in this state barely affect the general situation of the bed (2) in which the undersheet is placed beneath the patient, who will preferably be centred on the longitudinal axis of the bed (2).

[0016] When it is necessary to change the posture of the patient, such as turning his/her body over towards the left side of the bed, according to figure 2 it is sufficient to inflate the pillow (6) on the right side, as shown in said figure 2 so that the patient's body will be turned towards the intended side. Then the pillow (6) is deflated, and a posture change in the opposite sense is effected similarly, by inflating the pillow on the other side.

[0017] The large end widenings of the laminar body (1) are meant to facilitate changing the bed linen, for which purpose said end areas of the laminar body incorporate on their lower or inner face a plurality of adhesive strips (8), preferably of Velcro or the like, so that during the bed linen changing operation, as shown in figures 4 and 5, after inflating one of the pillows (6), the end sector of the laminar body (1) folds onto itself embracing the railing (9) on the opposite side of the bed, so that the patient is displaced in the bed towards said railing, allowing to operate on the half of the bed linen of one side to then act in the opposite sense, as shown in figure 5 to operate on the other half of the linen, thus removing it completely; the same operation is performed in an inverse sense to place the clean linen on the bed.

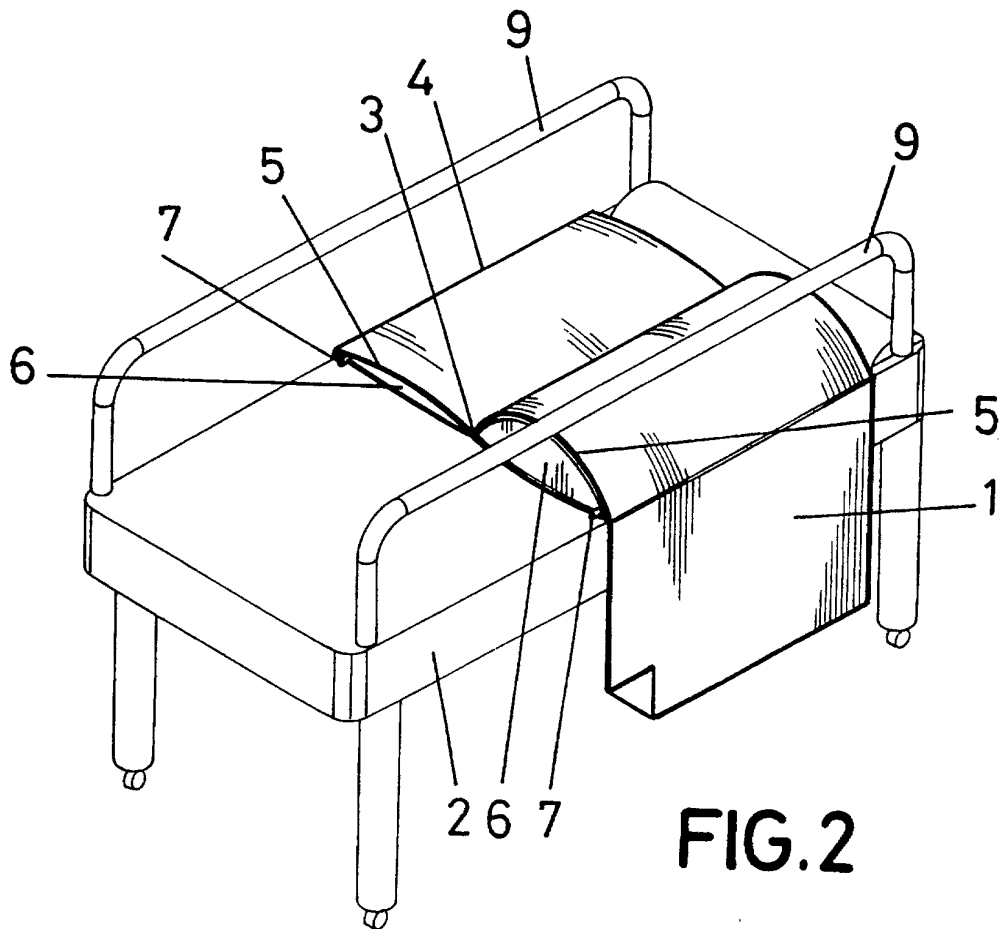
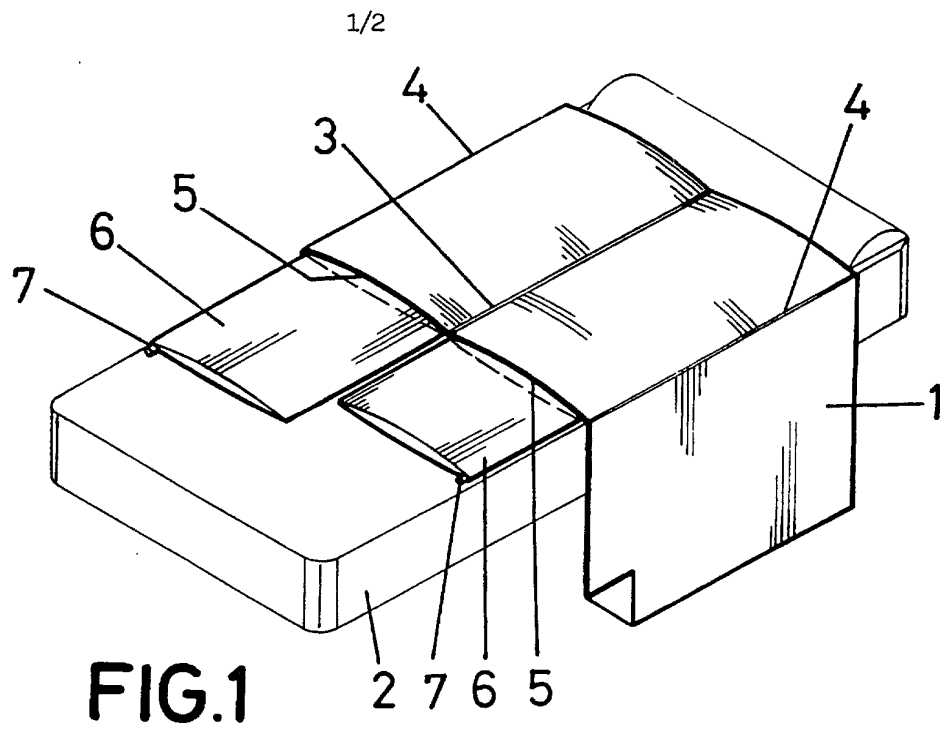
[0018] Thus it is possible, according to the main object of the present invention, to carry out the physical manipulation of the patient when changing his/her posture and when changing the bed linen with a minimal discomfort of the patient and a minimal effort by the nursing staff.

head and the foot of the bed and can house the corresponding inflatable pillows (6), which are provided with inflation valves (7) such that inflating one of said pillows (6) with any pressurised fluid will turn or change the posture of the patient towards the opposite side of the bed.

2. Undersheet for posture changes of patients in a hospital bed or the like, according to claim 1, **characterised in that** the aforementioned chambers (5) have a total joint width that is the same as the width of the bed (2) and a longitudinal length matching that of the upper body of the patient.
3. Undersheet for posture changes of patients in a hospital bed or the like, according to previous claims, **characterised in that** the inflatable pillows (6) can be inflated with air, oxygen or any other non-flammable gas that is suitably pressurised.
4. Undersheet for posture changes of patients in a hospital bed or the like, according to previous claims, **characterised in that** the laminar body (1) extends considerably on both sides of the chambers (5), determining large sectors provided near their free end with self-attachment means (8) such as adhesive strips, which allow, while the corresponding inflatable pillow (6) is inflated, to attach each of said ends to the railing (9) on the opposite side of the bed while changing the bed linen.

Claims

1. Undersheet for posture changes of patients in a hospital bed or the like, **characterised in that** it is comprised of a laminar body (1), preferably of a textile material and duly padded, in which a double wall determines two laterally adjacent chambers (5) with an intermediate seam (3) and two side seams (4), such that said chambers are open both towards the



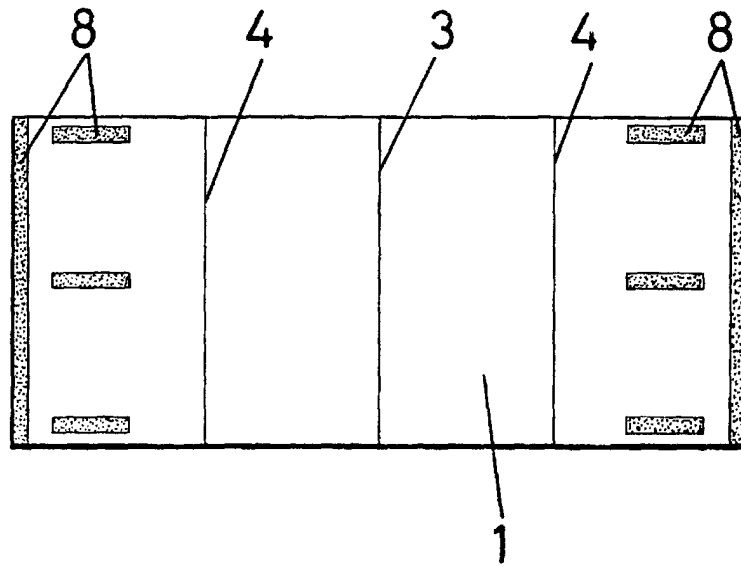


FIG. 3

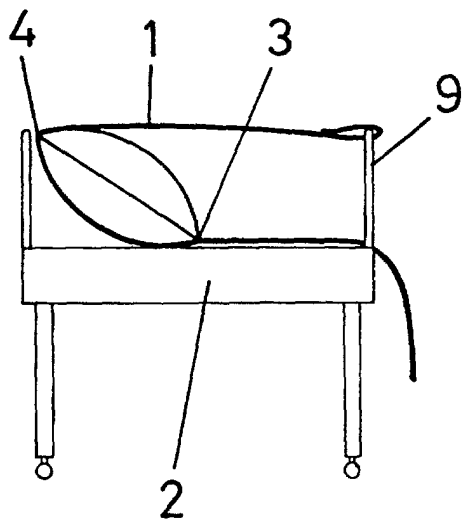


FIG. 4

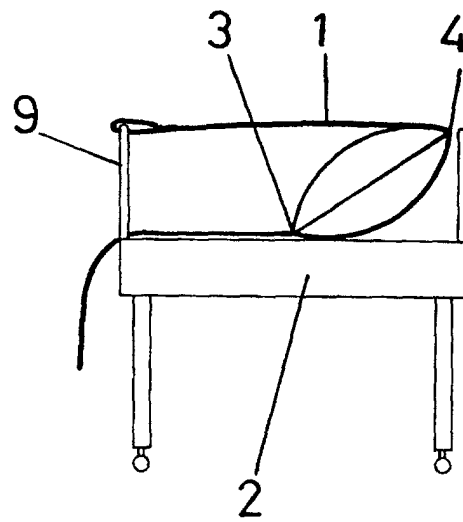


FIG. 5

INTERNATIONAL SEARCH REPORT

International application No.

PCT/ES 01/00113

A. CLASSIFICATION OF SUBJECT MATTER		
IPC 7 A61G 7/057		
According to International Patent Classification (IPC) or to both national classification and IPC		
B. FIELDS SEARCHED		
Minimum documentation searched (classification system followed by classification symbols)		
IPC 7 A61G		
Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched		
Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)		
CIBEPAT, EPODCC		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 3477071 A1 (EMERSON) 11. November 1969 (11.11.69) figures.	1-4
X	US 3485240 A1 (FOUNTAIN) 23. December 1969 (23.12.69) figures 1-3.	1-4
X	US 3775781 A1 (BRUNO et al.) 04 December 1973 (04.12.73) figures 1-3; column 1, lines 43-48, 54-67; column 2 lines 1-7.	1-4
X	GB 2026315 A (DYSON, R) 06 February 1980 (06.02.80) figures 1, 2; page 1.	1-4
☐ Further documents are listed in the continuation of Box C. ☒ See patent family annex.		
* Special categories of cited documents: "A" document defining the general state of the art which is not considered to be of particular relevance "E" earlier document but published on or after the international filing date "L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified) "O" document referring to an oral disclosure, use, exhibition or other means "P" document published prior to the international filing date but later than the priority date claimed "T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention "X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone "Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art "&" document member of the same patent family		
Date of the actual completion of the international search		Date of mailing of the international search report
26 June 2001 (26.06.01)		29 June 2001 (29.06.01)
Name and mailing address of the ISA/ S.P.T.O.		Authorized officer
Facsimile No.		Telephone No.

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Information on patent family membersInternational Application No
PCT/ES 01/ 00113

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 3477071A1	11.11.1969	NONE	
US 3485240 A1	23.12.1969	NONE	
US 3775778 A1	04.12.1973	NONE	
GB 2026315 A1	06.02.1980	NONE	

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