

(19)



Europäisches Patentamt

European Patent Office

Office européen des brevets



(11)

EP 0 832 633 A1

(12)

EUROPEAN PATENT APPLICATION

(43) Date of publication:

01.04.1998 Bulletin 1998/14

(51) Int Cl.⁶: **A61G 7/10**

(21) Application number: **97307521.1**

(22) Date of filing: **25.09.1997**

(84) Designated Contracting States:

**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

(30) Priority: **30.09.1996 GB 9620349**

(71) Applicant: **Careflex Holding B.V.**
3812 RL Amersfoort (NL)

(72) Inventor: **Meeuwissen, Martinus Adriaan**
6813 GB. Arnhem (NL)

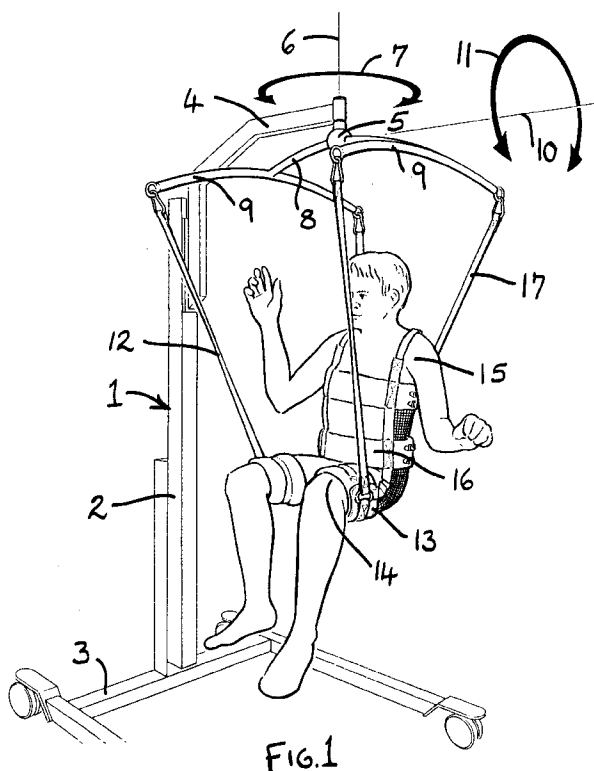
(74) Representative:

James, Michael John Gwynne et al
Wynne-Jones, Lainé & James
22, Rodney Road
Cheltenham Gloucestershire GL50 1JJ (GB)

(54) Improvements relating to supporting assemblies

(57) Linked to the front ends of a pair of support arms 9 (carried from a pivot 5) is a pair of straps 12 leading from support members 13 which are wrapped around and secured about the thighs 14 of the user 15. The support members 13 form part of a general harness 16 which is also secured about the torso of the user 15. A further pair of straps 17 extend from the chest area of the harness 16 and these straps 17 are linked to the

other ends of the arms 9. Gentle pressure applied to the upper part of the torso of the person can move him into a forward tilted condition. Additional forward rotation of the body about the centre of gravity 20 by further gentle pressure by a helper causes the body of the person to move into a condition closer to being parallel to the ground. He can then be lowered gently to the ground into a prone condition and the harness 16 can then be removed.



EP 0 832 633 A1

Description

For persons suffering from lack of muscular control or other disabilities there are difficulties for a helper in adjusting the position of that person. This is particularly so when trying to move the person from a sitting condition to a prone position where the person is lying on his front.

According to the present invention there is provided an assembly for turning a person and comprising a first harness portion for attachment to the chest and a pair of second harness portions for attaching to the thighs of the person, flexible straps extending firstly from the two sides of the first harness portion and secondly from each of second harness portions to linkage points at respective ends of a pair of support arms carried by a support structure such that the first straps are connected to the rear ends of the two arms and the second straps are connected to the front ends of the two arms, the two arms being mounted on the support structure such that they can tilt from front to back.

With such an arrangement the person is securely held by the harness and straps and is supported either side of his centre of gravity. A sitting person can then be raised or held by the support structure so that he is freely supported by the straps. The helper can then readily manipulate the person by gently pushing the torso forwards so that the body of the person rotates about his centre of gravity whilst the rearward straps move forwardly between the front straps as the body of the person adopts an attitude generally parallel to the ground. The person can then be lowered on the support structure down to the floor or on to a bed, for example. It is also possible for the person to be moved in the other direction to achieve a final position where he is lying on his back.

Ideally the front ends of the two arms are spaced apart from one another to an extent greater than the width of the body of an average person such that the body can pass between the pair of second straps as the body moves from a sitting attitude forwardly towards a prone position where the person can rest or lie his body on his front. Desirably the rear ends of the two arms are spaced apart to a lesser degree than the front ends but preferably also to an extent greater than the width of the body of an average person. This gives a very stable support for the body of the person when he is suspended by the straps.

It is greatly preferred that the two support arms should be connected to the support structure such that the assembly of the two arms can additionally rotate about a vertical axis. This gives much greater freedom of manipulation of the person to a desired new position. Preferably the support arms are connected by a centre strut, which can then be the means of connection to the support structure. Additionally or alternatively the support arms could be interconnected towards the rear, as well as having a generally central connection individually to the support structure.

It is preferred that the support structure should be capable of being raised and lowered. If necessary motorisation of movable parts of the support structure may be employed.

Advantageously the first and second harness portions may be part of a single piece harness for attachment to the person.

The invention may be performed in various ways and a preferred embodiment will now be described, by way of example, with reference to the accompanying drawings, in which:-

Figure 1 is a general view of a support assembly of this invention in use;

Figure 2 illustrates a detail of the support arms for the assembly of Figure 1; and

Figure 3 is a diagrammatic illustration of the use of the support assembly to change the position of a user.

The support assembly shown in Figures 1 and 2 is carried by a support structure 1. This has a main strut 2 extending up from a lowered wheeled platform 3 and an arm 4 extends out over the platform area 3 at the top end of the strut 1. This arm 4 carries a pivot member 5 which can be rotated about an axis 6 as shown by the arrows 7. A centre strut 8 interconnects a pair of arms 9. The strut 8 can rotate within the pivot member 5 about the axis 10, as shown by the arrows 11.

Linked to the front ends of the arms 9 is a pair of straps 12 leading from support members 13 which are wrapped around and secured about the thighs 14 of the user 15. The support members 13 form part of a general harness 16 which is also secured about the torso of the user 15. A further pair of straps 17 extend from the chest area of the harness 16 and these straps 17 are linked to the other ends of the arms 9. As can be seen from Figure 2 the arms 9 are spaced widely apart and indeed to an extent greater than the width of the person 15 to be supported so that, as can be seen from Figure 1, the person is supported in a cradle-like assembly where he will feel reasonably secure. The front ends 18 of the arms 9 are spaced apart to a wider extent to the rear ends 19.

The method of use of the support assembly is illustrated in Figure 3. When the person is positioned in a seated position 15A he is supported in a stable manner by the straps 12 and 17. Any seat or obstacle has been removed. Gentle pressure applied to the upper part of the torso of the person can move him into the condition illustrated at 15B. The movement of his head forwards automatically causes the legs and lower part of the body to move rearwardly and this movement is facilitated by the fact that the straps 12 (at their lower ends) move rearwardly whilst the straps 17 move forwardly as the support arms 9 tilt forwards to some extent.

Additional forward rotation of the body about the centre of gravity 20 by further gentle pressure by a help-

er causes the body of the person to move into a condition closer to being parallel to the ground. As the straps 12 and 17 and the arms 9 rotate further, the straps 17 will pass between the straps 12 (which are spaced more widely apart). All this time the body of the person is fully supported about this centre of gravity 20 since the ends of the straps 12 and 17 are positioned generally equidistant from that centre of gravity. Once the person has reached the position 15C he can be lowered gently to the ground (by operating a lowering mechanism forming part of the support structure 1) into the prone condition 15D. The harness 16 can then be removed.

Claims

1. An assembly for turning a person and comprising a first harness portion for attachment to the chest and a pair of second harness portions for attaching to the thighs of the person, flexible straps extending firstly from the two sides of the first harness portion and secondly from each of second harness portions to linkage points at respective ends of a pair of support arms carried by a support structure such that the first straps are connected to the rear ends of the two arms and the second straps are connected to the front ends of the two arms, the two arms being mounted on the support structure such that they can tilt from front to back.
2. An assembly according Claim 1, wherein the front ends of the two arms are spaced apart from one another to an extent greater than the width of the body of an average person such that the body can pass between the pair of second straps as the body moves from a sitting attitude forwardly towards a prone position where the person can rest or lie his body on his front.
3. An assembly according to Claim 2, wherein the rear ends of the two arms are spaced apart to a lesser degree than the front ends but preferably also to an extent greater than the width of the body of an average person.
4. An assembly according to any one of Claims 1 to 3, wherein the two arms are connected to the support structure such that the assembly of the two arms can additionally rotate about a vertical axis.
5. An assembly according to any one of Claims 1 to 4, wherein the support arms are interconnected by a central strut.
6. An assembly according to any one of Claims 1 to 5, wherein the support structure can be raised and lowered.
7. An assembly according to any one of Claims 1 to 6, wherein the first and second harness portions are parts of a single piece harness for attachment to the person.
8. Any novel combination of features of an assembly for turning a person and substantially as herein described and/or illustrated in the accompanying drawings.

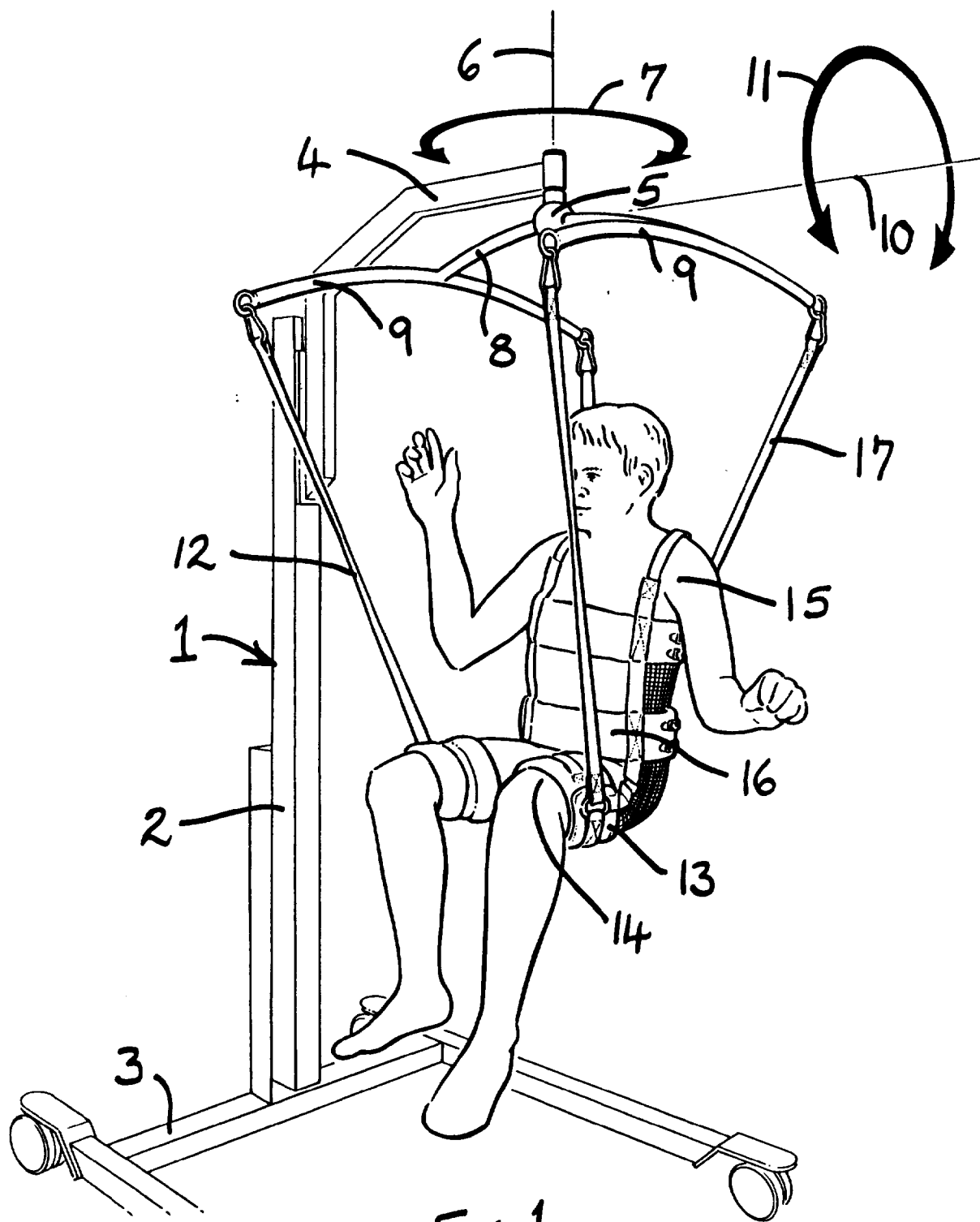
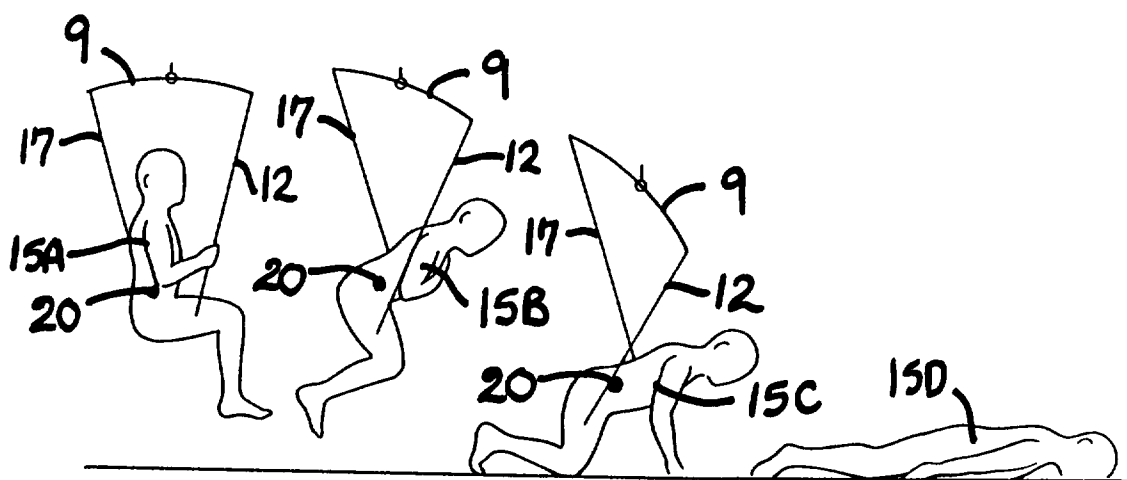
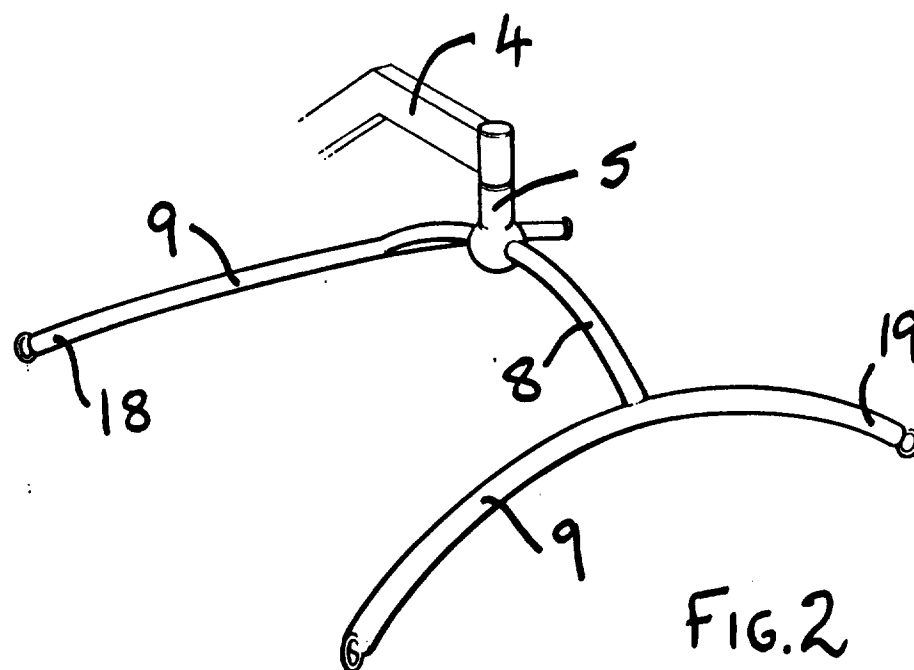


FIG.1





European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 30 7521

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	GB 2 192 125 A (HOLICK CHRISTINA B)	1,4,7,8	A61G7/10
Y	* the whole document *	5,6	

Y	US 5 388 289 A (CASPERSON DONALD L)	5	
	* figure 1 *		

Y	FR 2 731 899 A (JOUK OME)	6	
	* abstract; figures *		

A	NL 9 300 455 A (LOPITAL NEDERLAND B V)	1-8	
	* abstract; figures *		

A	US 3 234 568 A (FISCHER)	1-8	
	* figures *		

A	DE 94 02 462 U (HORCHER GMBH)	2,3	
	* the whole document *		

E	GB 2 311 764 A (BROMBERGER JOHN ANTHONY NEVILL)	1,4,5,7,8	
	* abstract; figures 1-4 *		

			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
			A61G
The present search report has been drawn up for all claims			
Place of search THE HAGUE		Date of completion of the search 9 December 1997	Examiner Godot, T
CATEGORY OF CITED DOCUMENTS		T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application I : document cited for other reasons & : member of the same patent family, corresponding document	
X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure I : intermediate document			

EPO FORM 1503 (03/82) (P4/01)