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(54) Transfer apparatus for nursing

(57) A transfer apparatus comprising a support arm (2) that may be pivotally mounted on a wall and which is adapted to pivot laterally, a tray (5) on which a patient may sit and a lifting means (3) which is mounted to the support arm (2) and being provided with a plurality of ropes (4). The tray can be hung on and removed from the ropes (4) extending from the lifting means (5) (Fig. 1).

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Description

Field of the Invention

[0001] The present invention relates to a transfer apparatus for nursing wherein transfers care recipients from wheelchairs, beds and other seats to places such as bathtubs and toilets.

Background of the Invention

[0002] Generally speaking, taking care of care recipients such as patients, the aged, and the disabled requires hard work physically and mentally.

[0003] The task requires enormous labor especially when nursing personnel has to transfer the care recipients, including transfer from a bed to a wheelchair and from the wheelchair to the bed. The nursing personnel has to hold the care recipient, and this requires hard labor.

[0004] Therefore, the applicant has already proposed a multi-functional, multi-purpose bed to alleviate the labor required for moving care recipients (Japanese patents laid open numbers 10-70455, 10-310933, 10-312223).

[0005] As is shown in Figure 8, a wheelchair B is integrated into a bed A. In this apparatus, a seat C, a back D, and a leg rest E are all flat and integrated into a bed A. Now a care recipient is laid face up. The back D and the leg rest E are raised from the flat position using a motor (not shown in the drawing). This operation can transfer a care recipient from the bed to the wheelchair. The care recipient can be transferred very easily once he is on the wheelchair.

[0006] When transferring the care recipient from the wheelchair to the bed, after moving the wheelchair B to the center of the bed A, the back D and the leg rest E are returned to the flat position and the wheelchair B is integrated into the bed A. This operation can easily transfer the care recipient from the wheelchair B to the bed A.

[0007] And so this apparatus can transfer the care recipient between the wheelchair B and the bed A easy and safe, so that this apparatus can substantially reduce the hard labor required when nursing personnel has to hold the care recipient to transfer the care recipient between the wheelchair B and the bed A.

[0008] The multi-functional, multi-purpose bed proposed by the applicant can easily transfer the care recipient form the bed A to the wheelchair B. However, when transferring the care recipient from the wheelchair B to a bathtub and a toilet, the nursing personnel has to hold the care recipient each time such need arises.

[0009] To reduce the hard labor required for nursing, not only the transfer between the bed A and the wheelchair B, but also the transfer from the wheelchair B to bathtubs and other places is onte of problems that should be alleviated.

[0010] It is thus an object of the present invention to provide a novel transfer apparatus for nursing wherein the care recipient can be easily and safely transferred from wheelchairs and other seats to bathtubs and other places to solve the problems stated above.

Summary of the Invention

[0011] The present invention is related to an apparatus provided with a support arm which looks like a cantilever, its end portion pivotally mounted on things such as a wall, ceiling, and a pole so that it can make a pivotal movement laterally; a tray on which a care recipient can be placed sitting; and a lifting means that hangs from the aforesaid horizontal support arm and composes a plurality of ropes to support the above-mentioned tray. The tray can be freely removed from and attached to the ropes of the lifting means.

[0012] In order to transfer the care recipient from a wheelchair to a bathtub, the tray is inserted in advance under the bottom of the recipient; a plurality of ropes extending from the lifting means are connected to the tray; and the tray is lifted using the lifting means. Then, the care recipient can be lifted to a certain height together with the tray while the care recipient is sitting on it.

[0013] The care recipient can be moved to any position including a bathtub and toilet when the support arm supporting the tray is moved pivotally around an axis at the one end of the support arm. And then, the lifting means can very easily descend the care recipient together with the tray into a bathtub or onto a toilet.

[0014] The present invention further include said tray with a through hole in the center. This decreases the weight of the tray and facilitate excretion after a care recipient sits on a toilet.

[0015] The present invention still further include a cut that partially opens the through hole made in the center of the tray. This further decreases the weight of the tray, facilitates excretion while a care recipient sits on a toilet, and prevents filth.

[0016] Furthermore, the present invention is related to said tray comprising a circular or doughnut-shaped lower tray and an upper tray that rotates freely against the lower tray. Because the care recipients can be rotated in accordance with the upper tray against the lower tray, adjusting the position after the care recipient is seated is made smooth.

Brief Description of the Drawings

[0017] Figure 1 is a perspective view of a preferred embodiment of the present invention.

[0018] Figure 2 is a perspective view of a tray related to the present invention.

[0019] Figure 3 is a perspective view of another tray related to the present invention.

[0020] Figure 4 is describing how to use the tray related to the present invention.

[0021] Figure 5 is a perspective view of a tray in another example of preferred embodiment of the present invention.

[0022] Figure 6 is a perspective view of still another preferred embodiment of the present invention.

[0023] Figure 7 is a cross-sectional view of a tray in another preferred embodiment of the present invention.

[0024] Figure 8 is an illustration of the working of a multi-functional, multi-purpose bed proposed by the applicant.

Detailed Description of the Preferred Embodiments

[0025] The preferred embodiments of the present invention will now be explained in detail with reference to the accompanying drawings.

[0026] Figure 1 shows an embodiment of a transfer apparatus for nursing 1 related to the present invention.

[0027] As is shown in the drawing, the transfer apparatus for nursing 1 comprises a support arm 2, a lifting means 3 and a plurality of ropes 4, 4, 4, 4. The support arm 2 is mounted on a wall over a bathtub and extends horizontally. The lifting means 3 is mounted at the tip of the support arm 2. The lifting means 3 has a plurality of ropes 4, 4, 4, 4 (in the present embodiment, four ropes). The ropes 4, 4, 4, 4 suspend a tray 5.

[0028] The support arm 2 comprises a first arm 2a and a second arm 2b. One end of the first arm 2a is pivotally suspended on the wall and the other end is connected with one end of the second arm 2b over a pivot, allowing horizontally pivotal movement.

[0029] The lifting means 3 comprises a lifting mechanism 3a, which is mounted at the outer tip of the second arm 2b, and a cross-shaped hoisting frame 3b. To each tip of the cross-shaped hoisting frame 3b is attached an end of the ropes 4, 4, 4, 4. A rack 3c extends upward from the center of the cross-shaped hoisting frame 3b. The rack 3c moves vertically with an electric motor 3d of the lifting mechanism 3a, pinions, and a gear mechanism (not shown in the drawing).

[0030] As is shown in Figure2 and Figure 3, the shape of the tray 5 can be a rectangular or a circle so as to support the care recipient. On the periphery of the tray, there are a plurality of fittings 5a, 5a, 5a, 5a (in the present embodiment, four fittings). Each of the ropes 4, 4, 4, 4 has a hook 4a, 4a, 4a, 4a. The tray 5 is removable owing to the hooks 4a, 4a, 4a, 4a and the fittings 5a, 5a, 5a, 5a. In the center of the tray 5 is a through hole 5b of such a size that will not affect the sitting position of the care recipient.

[0031] Following is the explanation of how the transfer apparatus for nursing 1 related to the present invention works.

[0032] As is shown in Figure 4, a care recipient is placed on the edge of the multi-functional, multi-purpose bed A proposed by the applicant. The tray 5 is placed on the seat C of the wheelchair B that is integrated into the bed A. Then, after the care recipient is turned face up, the wheelchair B is activated and the care recipient is moved to the wheelchair B. The tray 5 is now under the hips of the care recipient. Then the wheelchair B is moved to an entrance of a bathroom wherein the invented apparatus 1 is installed.

[0033] Next, the lifting means 3 is moved in a manual operation or in any other way to a position just over the head of a care recipient who is sitting on the wheelchair B. Then, the hooks 4a, 4a, 4a, 4a are connected to the fittings 5a, 5a, 5a, 5a. After that, the lifting mechanism 3a of the lifting means 3 is activated, and the cross-shaped hoisting frame 3b moves slowly upward. The care recipient sitting on the tray 5 are now carried upward in accordance with the upward movement of the cross-shaped hoisting frame 3b. Subsequently, the care recipient is now transferred to the present apparatus 1 shown in Figure1 apart from the wheel chair B. In case the care recipient's bodily position is unstable, winding a safety belt outside the ropes 4, 4, 4, 4 before the elevation of the tray 5 might prevent the care recipient from falling down off the tray 5.

[0034] After the care recipient is completely moved to the apparatus 1, the support arm 2 is moved pivotally in a manual handling to carry the care recipient on the tray 5 to the bathtub 6. Then, the lifting mechanism 3a is activated to descend the tray 5 and subsequently the care recipient sitting on the tray 5 in accordance with the movement of the tray 5. Now the care recipient is placed within the bathtub 6. A handle installed near the support arm 2 might help move the care recipient easily and assuredly. An electrically activated motor installed on the support arm 2 might be used to electrically regulate the movement of the support arm 2.

[0035] After the necessary work including cleansing the care recipient, the lifting mechanism 3a is activated again to elevate the tray 5 so that the care recipient is raised above the bathtub 6. Then the support arm 2 is moved pivotally to the position above the wheelchair B, and the tray 5 is lowered. Now the care recipient is on the wheelchair B along with the tray 5. The hooks 4a, 4a, 4a, 4a of the ropes 4, 4, 4, 4 are removed from the fittings 5a, 5a, 5a, 5a, and so moving the care recipient from the bathtub 6 to the wheelchair B is finished.

[0036] In the present invention, the tray 5 whereon a care recipient is carried can be removed from the main part of the apparatus, making it possible to move the care recipient together with the tray 5. This eased the transfer of care recipients to toilets and bathtubs, which has been requiring hard labor. As a result, the labor of nursing personnel is substantially reduced. It is also possible to move the care recipient to sit on a toilet 7 for excretion while the care recipient is on the tray 5.

[0037] As a result, even if nursing personnel includes a woman or an elderly person, who usually doesn't have much have physical strength, can give proper care, or further a care recipient can take a bath or go to a toilet on his or her own. That reduces labor and pain physically and mentally of both the nursing personnel and the

care recipient, and at the same time substantially reduces the costs including personnel cost in terms of nursing care.

[0038] The present invention is not limited to the embodiment shown above. The present embodiment shows an example of transfer of a care recipient based on the multi-functional, multi-purpose bed the applicant has proposed. However, if the tray 5 of the present invention can be placed under the hips of the care recipient, similar effects and benefits can be derived in case of a transfer from an ordinary wheelchair or a transfer directly from a bed without the use of a wheelchair.

[0039] The support arm related to the present invention comprises the first arm 2a and the second arm 2b. However, a support arm comprising one arm or a support arm comprising three or more arms can work. If the configuration of the bathtub 6 and the entrance makes it possible for one-arm support arm to transfer between the two positions, the structure of the support arm 2 can be simplified.

[0040] On the contrary, if the arm is composed of three or more arms, there are more joints and the movement of the support arm is more flexible, and is able to execute more complex movement.

[0041] The through hole 5b in the center of the tray 5, the size of which is determined so that the sitting position of the care recipient is not affected, can have good effects including decreased weight of the tray 5, easier excretion made possible because there is no need of transferring the care recipient from the tray, and decreased time of drying after a bath. Further, if a cut is applied to the through hole 5b to make the hole partially open, excretion can be facilitated further because any part of the tray 5 does not interfere with the action.

[0042] As is shown in Figure 6 and Figure 7, a combination tray can facilitate the change of the bodily position. A bottom tray 5d with a through hole 5b and an upper tray 5e, which is placed to cover the bottom tray 5d are connected using a bearing 8 so that the bottom tray 5d and the upper tray 5e can rotate freely. In this example, the bottom tray 5d and the upper tray 5e do not have to have the through hole 5b.

[0043] To summarize, the embodiments herein described can perform easily and safely the transfer of a care recipient from a wheelchair to a bathtub and a toilet. As a result, even if nursing personnel includes a woman or an elderly person, who usually doesn't have much physical strength, a proper nursing can be given to the care recipient.

[0044] Further a care recipient can take a bath or go to a toilet on his or her own. This results in decreased labor and pain physically and mentally concerning nursing care for both the nursing personnel and the care recipient.

[0045] Still further, a great cost reduction in terms of personnel and other areas is possible as a good effect of the invention.

Claims

1. A transfer apparatus for nursing comprising a support arm that is pivotally mounted and is pivotally movable in lateral direction, a tray whereon a care recipient is placed sitting and a lifting means which is hoisted to the said support arm to suspend the tray with the use of a plurality of ropes, and the said tray can be set to and remoed from the ropes freely.

2. A transfer apparatus for nursing as in claim 1, wherein the tray has a through hole in the center of the tray.

3. A transfer apparatus for nursing as in claim 2, wherein the tray has a cutting that partially opens the said through hole.

4. A transfer apparatus for nursing as in claim 1, wherein the tray has two layers of trays in which the lower tray can be circular or doughnut-shaped and in which the upper tray covers the lower tray and can rotate freely.

FIG. 1

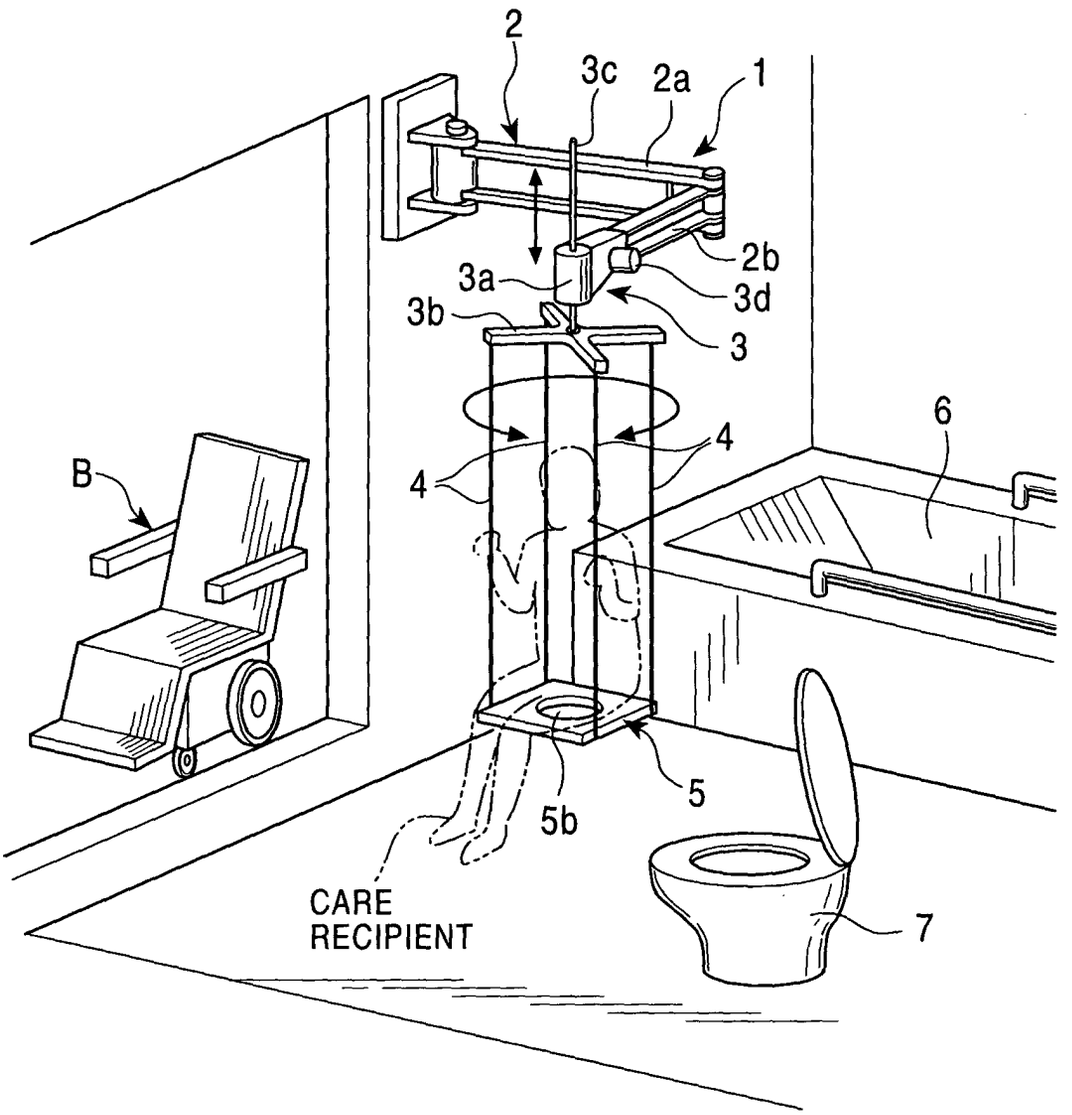


FIG. 2

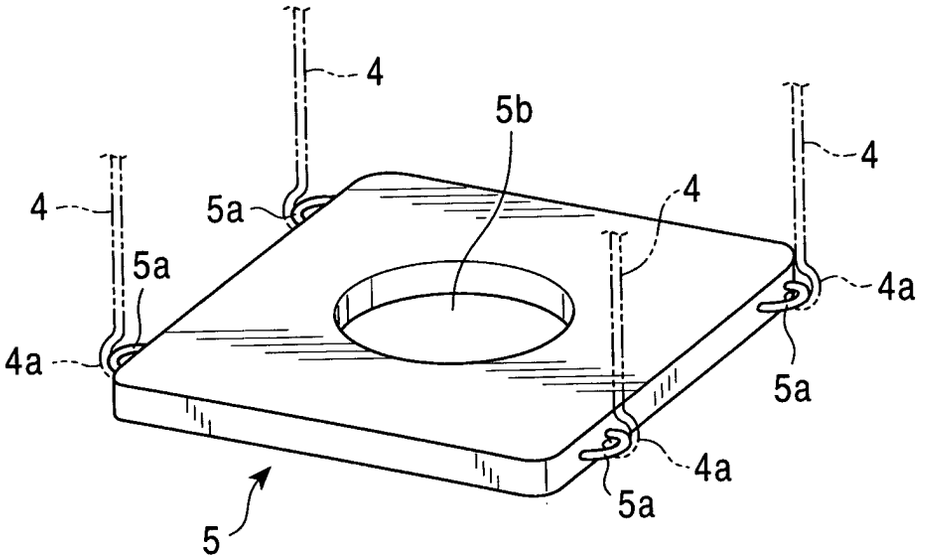


FIG. 3

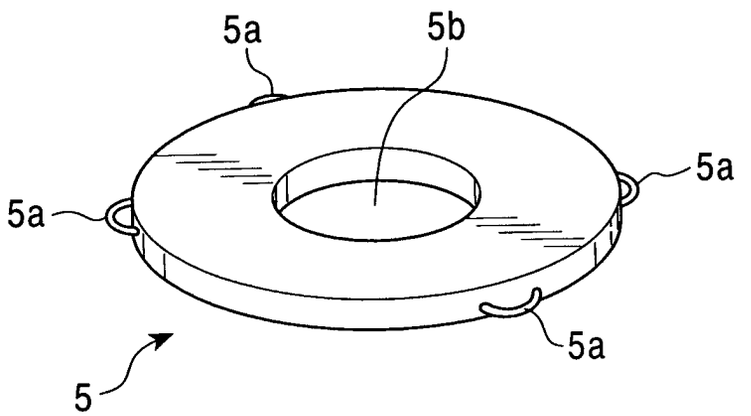


FIG. 4

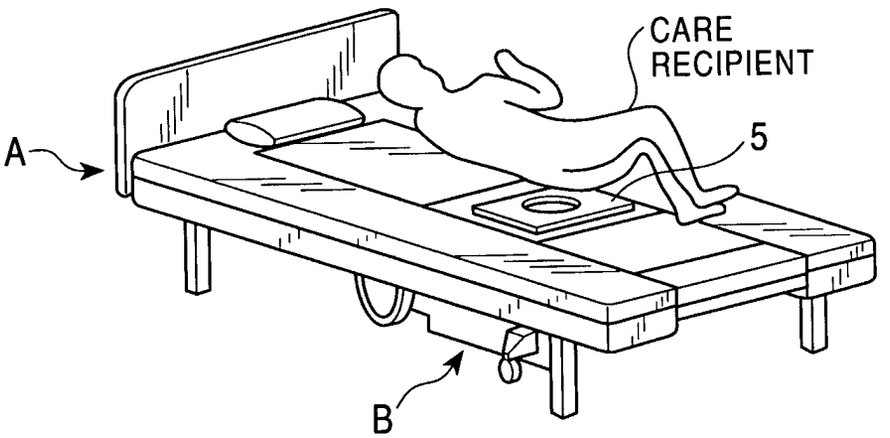


FIG. 5

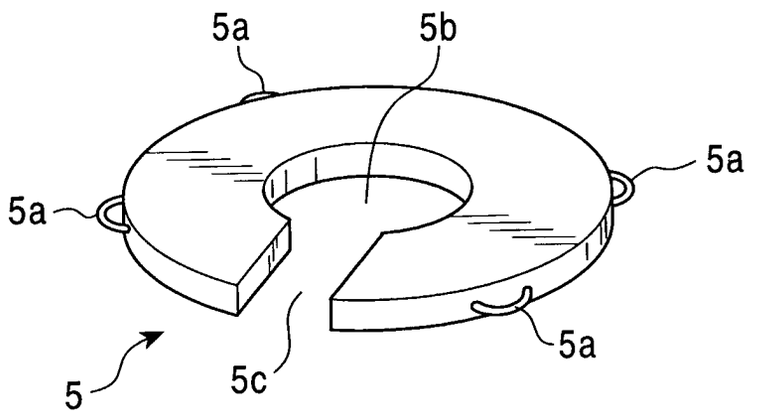


FIG. 6

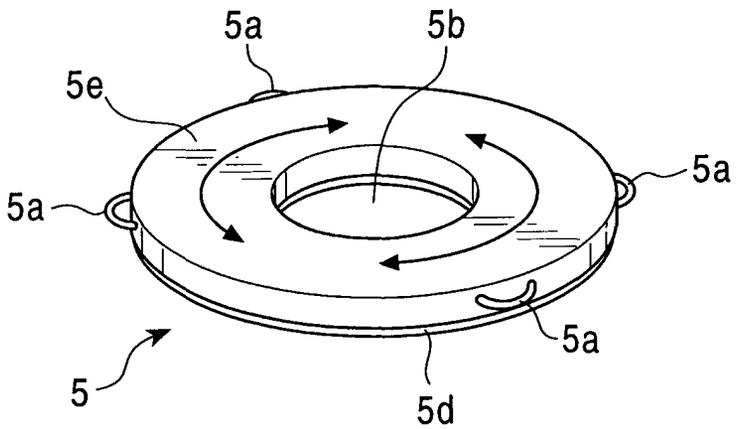


FIG. 7

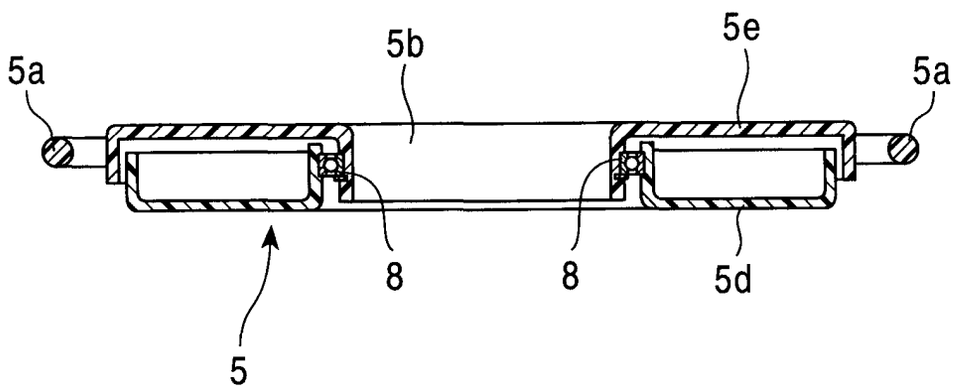
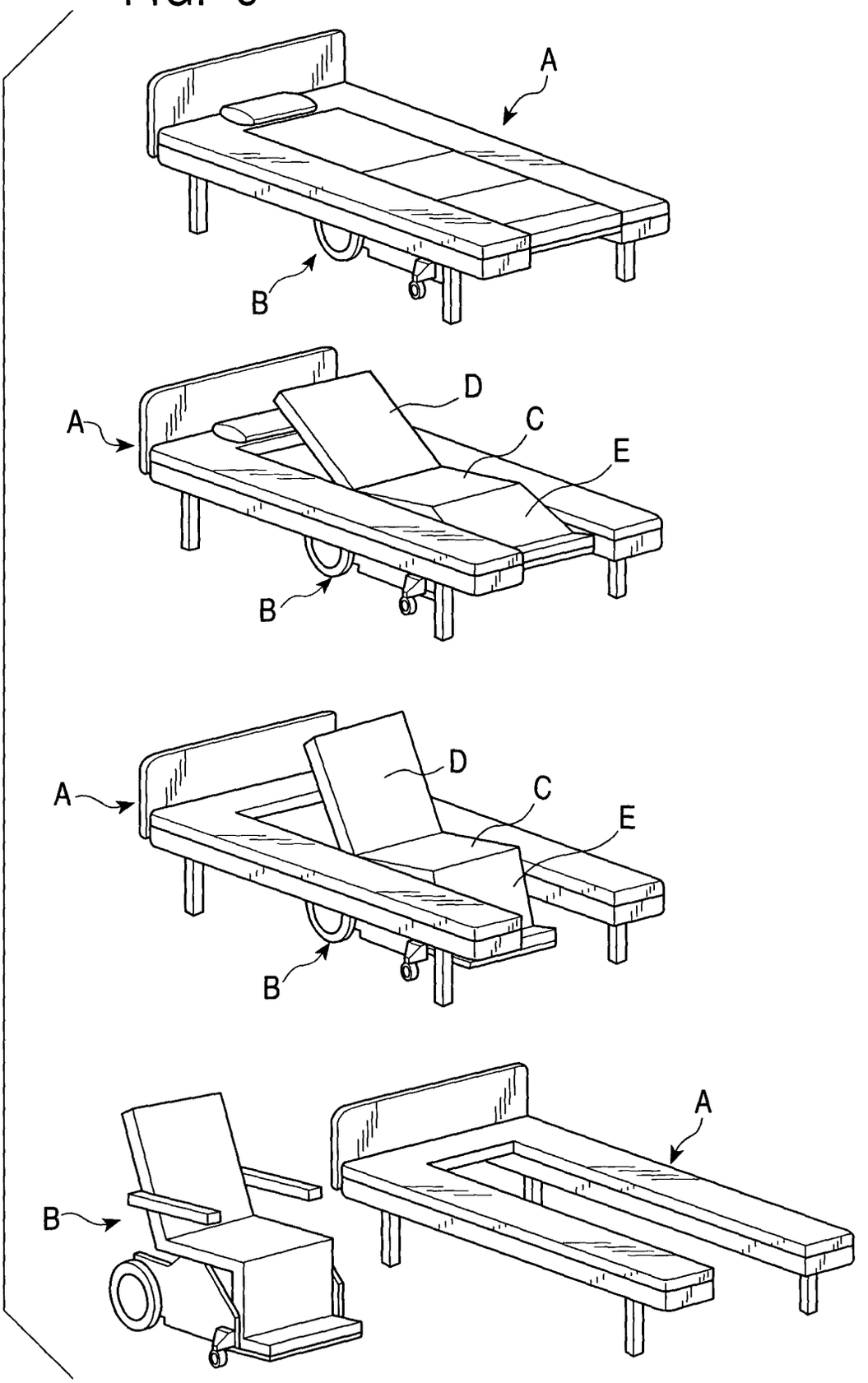


FIG. 8



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EUROPEAN SEARCH REPORT

Application Number
EP 00 12 6629

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Y	WO 97 30675 A (VON WALZEL PETER) 28 August 1997 (1997-08-28) * page 3, line 1 - page 4, line 22; figures 2,4 *	1-4	A61G7/10
Y	US 5 038 425 A (MERRY DONALD D) 13 August 1991 (1991-08-13) * column 2, line 54-65 * * column 3, line 47 - column 4, line 61 * * column 5, line 8-11 * * column 5, line 21-44 * * figure 1 *	1-3	
Y	GB 2 242 885 A (NESBIT EVANS & CO LTD) 16 October 1991 (1991-10-16) * page 3, paragraph 4; figure 1 *	4	
			TECHNICAL FIELDS SEARCHED (Int.Cl.7) A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
MUNICH	27 April 2001	Rosenblatt, T

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