



(12) **EUROPEAN PATENT APPLICATION**

(43) Date of publication:
15.11.2017 Bulletin 2017/46

(51) Int Cl.:
A61G 5/00 (2006.01) **A61G 5/10 (2006.01)**
A61G 5/12 (2006.01)

(21) Application number: **16168762.9**

(22) Date of filing: **09.05.2016**

(84) Designated Contracting States:
**AL AT BE BG CH CY CZ DE DK EE ES FI FR GB
GR HR HU IE IS IT LI LT LU LV MC MK MT NL NO
PL PT RO RS SE SI SK SM TR**
Designated Extension States:
BA ME
Designated Validation States:
MA MD

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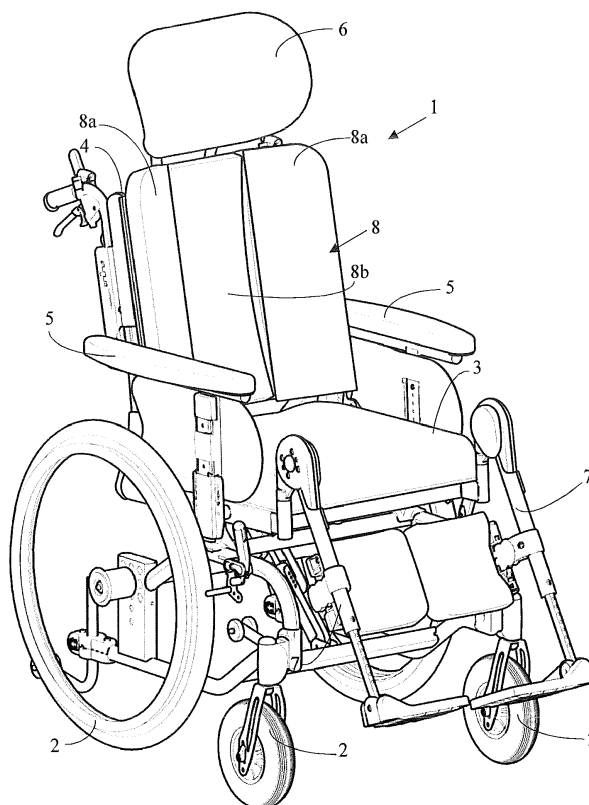
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(54) **BACK SUPPORT CUSHION**

(57) A back support cushion (8) for use in a wheelchair (1), comprises two side portions (8a) and a central portion (8b). The side portions (8a) and the central portion (8b) are shapeable independently of the adjacent cushion

portion or portions (8a, 8b). The invention also extends to a wheelchair (1) comprising such a back support cushion (8).

Fig. 1



Description

TECHNICAL FIELD

[0001] The present invention concerns a back support cushion for use in a wheelchair, comprising two side portions and a central portion.

[0002] The invention also concerns a wheelchair.

BACKGROUND ART

[0003] There are a number of different types of wheelchairs available to accommodate the needs of different users with varying physical capacities and disabilities. For users with an active lifestyle, there are wheelchairs mainly with an upright seating position. For users with greater needs for rest or support, there are wheelchairs with head supports and back supports with back support cushions, which assist in keeping the user from falling or sliding sideways, by a suitable curvature in the lateral direction.

[0004] Many wheelchairs are provided with straps at the back of the seat. These straps may be more or less tensioned for providing different degrees of support at varying levels of the back of the seat. A highly tensioned strap will provide only a low or no curvature in the lateral direction, whereas a strap with a lower tension will provide a higher degree of curvature in the lateral direction. However, as the straps are arranged at the very back of the seat, the back cushion may fill out the curvatures, and the straps are noticeable mainly as varying degrees of support for different parts of the user's back.

[0005] A user with a kyphotic spine, i. e. with a more or less pronounced hump on their back, may not benefit fully from a seat back according to the prior art. As the hunched part of the back will primarily come into contact with the back rest as they lean back into the wheelchair, the rest of the back will not be supported by the back cushion. The head of the user will still be leaning forward and will not be able to reach a possible head support at the back of the seat, so that the user's neck will attain a relaxed position. The user will not be prevented from sliding or falling sideways, and will not attain a restful or comfortable position in the wheelchair.

PROBLEM STRUCTURE

[0006] There is thus a need for a back support which caters to the needs of wheelchair users with a kyphotic spine, providing a comfortable seating position for them as far as possible.

SOLUTION

[0007] The objects forming the basis for the present invention are attained if the back support cushion mentioned in the introduction is characterized in that the side portions and the back portion are shapeable independ-

ently of the adjacent cushion portion or portions.

[0008] The wheelchair according to the invention includes the abovementioned back support cushion.

[0009] Further advantages will be attained if the present invention is given one or more features from the subclaims.

BRIEF DESCRIPTION OF THE ACCOMPANYING DRAWINGS

[0010] The present invention will now be described in greater detail hereinbelow, with reference to the accompanying drawings. In the accompanying drawings:

Fig. 1 shows a perspective view of a wheelchair including a back support cushion according to the invention;

Fig. 2 is a perspective view of the back support cushion according to the invention in a position of use;

Fig. 3 is a plan view of the back support cushion according to the invention in an extended state;

Fig. 4 is a view from above of the back support cushion according to Fig. 3, when it is about to be mounted on a wheelchair;

Fig. 5 is a view according to Fig. 3 of the opposite side of the back support cushion; and

Fig. 6 is a view according to Fig. 1 from the back of the wheelchair.

DESCRIPTION OF PREFERRED EMBODIMENT

[0011] Fig. 1 shows a wheelchair 1 according to the invention. Like most wheelchairs, it has a set of wheels 2, a seat 3 with a back support 4, and arm supports 5. The wheelchair 1 is also provided with a head support 6, and leg supports 7. The back support 4 is provided with a back support cushion 8, which has two side portions 8a and a central portion 8b.

[0012] Unlike back support cushions according to the prior art, the back support cushion 8 according to the invention is not designed a one single cushion. The side portions 8a and the central portion 8b are shapeable independently, to a large extent, of one another. As seen in Fig. 1, the side portions 8a are arranged to be straight and angled slightly inwards, while the central portion 8b is provided with a considerable curvature as seen in the vertical direction, i. e. around an approximately horizontal axis.

[0013] The curvature in the vertical direction of the central portion 8b may be varied in accordance with the shape of the user's back. A user with a kyphotic spine will hence be supported along their whole back, as the

curved central portion 8b will follow the contours of their back and give enough room for their back, when the cushion 8 has been properly adjusted and the user is sitting as upright in the wheelchair as possible. At the same time the side portions 8a need not be as curved, or not curved at all, in order to support the less curved parts of the user's back.

[0014] The side portions 8a and the central portion 8b are preferably also positionable independently of one another, within a limited distance. The portions 8a, 8b of the cushion 8 may be angled relative to one another, as shown in Fig. 1. A lateral curvature of the cushion 8, in addition to the vertical curvature of one or more of the portions 8a, 8b, is thereby provided. This lateral curvature is not predetermined as in many other back support cushions, but may be individually adjusted to each user, and may be asymmetrical. In the case of an asymmetrical adjustment one or more wedge-formed cushions may be used next to the back support cushion 8.

[0015] The cushion 8 is shown in greater detail in Fig. 2. The side portions 8a are angled towards the central portion 8b, but they have not been bent in this figure. The central portion 8b has been bent to attain a curvature in the vertical direction. The central portion 8b is longer than the side portions 8a, thereby allowing for further bending, while its lower edge remains lower than or in level with, or lower than, the lower edges 13 of the side portions 8a.

[0016] In Fig. 3, the cushion 8 is shown in an extended state, when it has been removed from the wheelchair 1. The side portions 8a have been placed at a maximum distance from the central portion 8b. The side portions 8a are connected to the central portion 8b by flexible webs 9. In a preferred embodiment, the webs 9 are made of a smooth, woven fabric, which allows an easy positioning of the cushion portions 8a, 8b. In some embodiments the fabric may be non-woven. In further embodiments the fabric may be knit. In many embodiments the fabric may be resilient or elastic as well, either due to the method of production as such or due to an inclusion of elastic fibers or bands in the web 9.

[0017] The webs 9 may extend along most of the lateral edges 10 of the cushion portions 8a, 8b, as seen in Fig. 3. However, the webs may also be smaller portions of fabric or bands.

[0018] The size and the texture of the webs 9 determines to what extent the cushion portions 8a, 8b are positionable, with varying angles and distances, in relation to one another. These properties of the web also determines the maximum amount of curvature in the vertical (in the position of use) direction of one cushion without bending of the adjacent cushion.

[0019] In Fig. 4, the thin and flexible nature of the webs 9 is further illustrated. The cushion portions 8a, 8b are, on the other hand, thicker. This ensures that the cushion portions 8a, 8b are able to provide a suitable support to the user, even when they have been bent to a suitable shape in a desired direction.

[0020] In order to provide means for fixing the back

support cushion 8 in the wheelchair 1, loops 11 for straps 16 in the back support 4 are provided at the back of at least one 8b of the cushion portions, preferably on the central portion 8b.

[0021] In order to facilitate an exact positioning of the different parts 8a, 8b of the cushion 8, Velcro fasteners 17 may be arranged at the back of the cushion 8 in one or more positions. Corresponding Velcro fasteners 17 are preferably arranged at the back support 4 of the wheelchair 1, e. g. on the straps 16 in the back support 4, so that the cushion parts 8a, 8b will remain in their selected positions. Some Velcro fasteners 17 may be arranged in the vicinity of the loops 11, but they may also be placed independently of these. Usage of the Velcro fasteners and of the loops 11 depends on the desired shape of the back support cushion 8, and not all of them need to be used in a particular case.

[0022] The straps 16 are secured to upright side bars 18 in the back support 4. The side bars 18 are stiff enough to support the weight of a person leaning against the back support 4, and they also act as support for the side portions 8a, so that these portions of the cushion may be kept upright and keep the user of the wheelchair 1 from accidentally siding sideways. Whereas the side portions 8a of the cushion 8 are deformable in themselves, there is sometimes a need for a firmer support, at least for some parts of the cushion portions 8a, and the support from the side bars 18 will provide the needed support to the cushion side portion 8a, which, in its turn provide a support to the user, with a distributed pressure and a comfortable, soft surface.

[0023] The loops 11 are more clearly visible in Fig. 5. There are also a number of zippers 14 for allowing the inner padding of the cushion portions 8a, 8b to be exchanged or removed before washing.

[0024] On the side portions 8a there are also half zippers 15, which are provided for fastening the back support cushion 8 on the back support 4 by cooperation with matching zipper halves on the back support 4.

[0025] In Fig. 6, one pair of the loops 11 may be discerned behind one of the straps 16 in the back of the back support 4 of the wheelchair 1. Depending on the desired shape of the central portion 8b, the loops 11 may or may not be used. It is possible to use only some of the loops, also depending on the desired shape of the cushion 8. In the figure only an inner part of the strap 16 is threaded through the loops 11. Also, folds of the web 9 between the cushion portions 8a, 8b are visible.

[0026] In a preferred embodiment, the Velcro fasteners described above are arranged in the vicinity of the loops 11, thereby increasing the number of possibilities to fix the cushion 8 in a desired shape.

ALTERNATIVE EMBODIMENTS

[0027] The invention has been described in relation to one particular wheelchair 1. Depending on the abilities of the user, another type of wheelchair with other acces-

sories may be needed for the user. The back rest cushion 8 according to the invention may be used on many different types of wheelchairs, and the invention is not limited to use with the wheelchair 1 shown in the drawings.

[0028] In order to cater for users with a need for a more complex shaping of the back support cushion 8, the cushion 8 may be divided into several more portions 8a, 8b, which are connected by webs 9, and which may all be shaped individually in the same manner as described for the preferred embodiment with three portions.

[0029] The invention may be varied further within the scope of the appended claims.

Claims

1. Back support cushion (8) for use in a wheelchair (1), comprising two side portions (8a) and a central portion (8b), **characterized in that** the side portions (8a) and the central portion (8b) are shapeable independently of the adjacent cushion portion or portions (8a, 8b). 5
2. Back support cushion (8) according to claim 1, **characterized in that** each cushion portion (8a, 8b) is positionable, within a limited distance, independently of the other cushion portions (8a, 8b). 10
3. Back support cushion (8) according to claim 1 or 2, **characterized in that** each cushion portion (8a, 8b) is bendable around an approximately horizontal axis, as seen in the intended position of use. 15
4. Back support cushion (8) according to any of claims 1 to 3, **characterized in that** each cushion portion (8a, 8b) is positionable for support by a wheelchair structure. 20
5. Back support cushion (8) according to any of claims 1 to 3, **characterized in that** the side portions (8a) are joined to the central portion (8b) by means of a flexible web (9). 25
6. Back support cushion (8) according to claim 5, **characterized in that** the web (9) is resilient. 30
7. Back support cushion (8) according to any of claims 1 to 6, **characterized in that** loops (11) for fastening straps are provided on the back of at least one of the cushion portions (8a, 8b). 35
8. Back support cushion (8) according to any of claims 1 to 7, **characterized in that** Velcro fasteners are arranged on the back of at least one of the cushion portions (8a, 8b). 40
9. Wheelchair (1) comprising a back support cushion (8) according to any of claims 1 to 8. 45
10. Wheelchair (1) according to claim 9, **characterized in that** the side portions (8a) of the back support cushion (8) are supported by a back support (4) of the wheelchair (1). 50
11. Wheelchair (1) according to claim 9 or 10, **characterized in that** Velcro fasteners which are arranged on the back of at least one of the cushion portions (8a, 8b) cooperate with corresponding Velcro fasteners on the back support (4) of the wheelchair (1). 55

Fig. 1

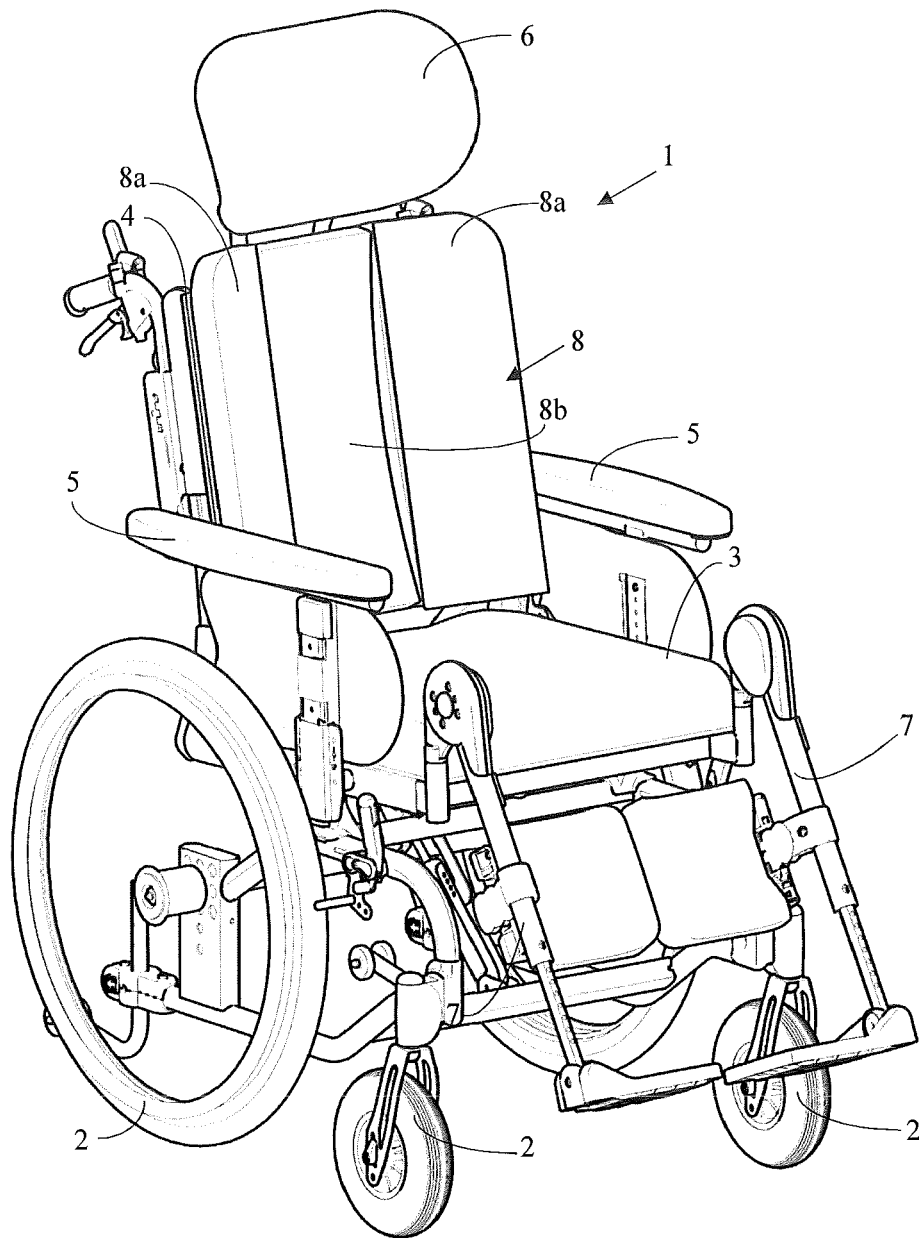
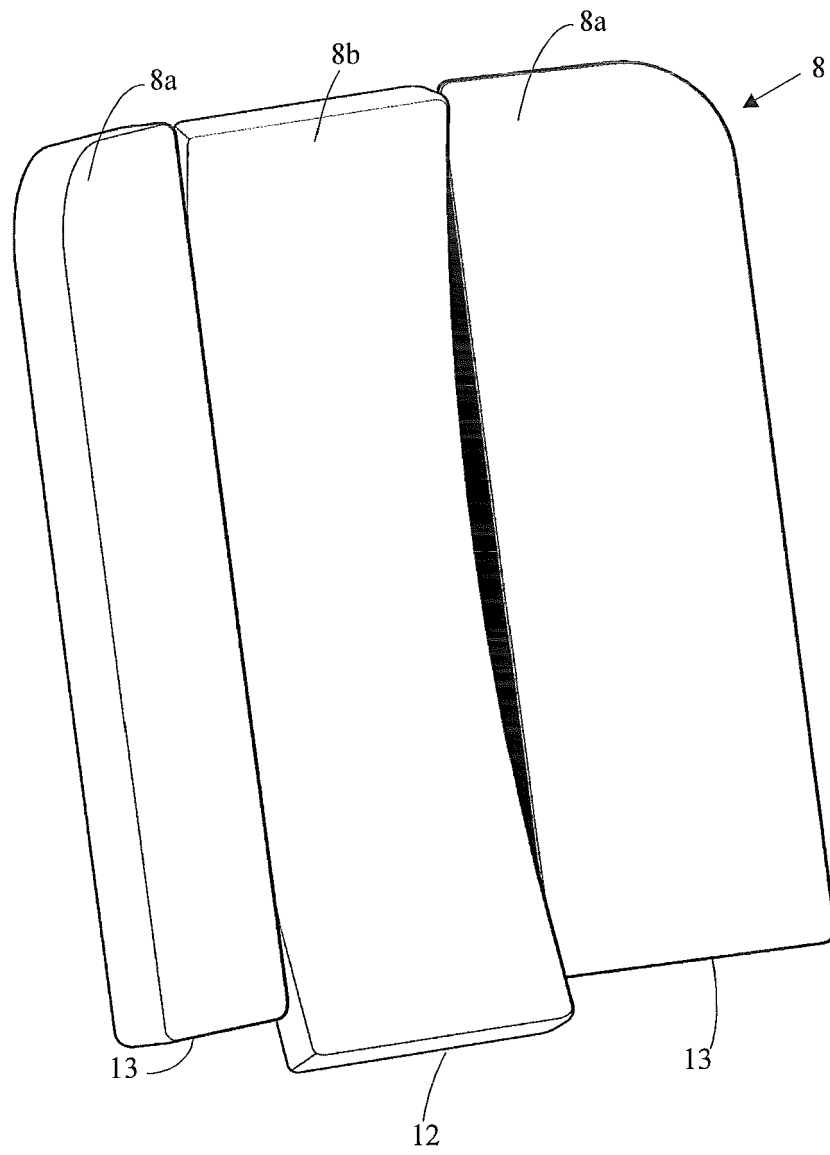


Fig. 2



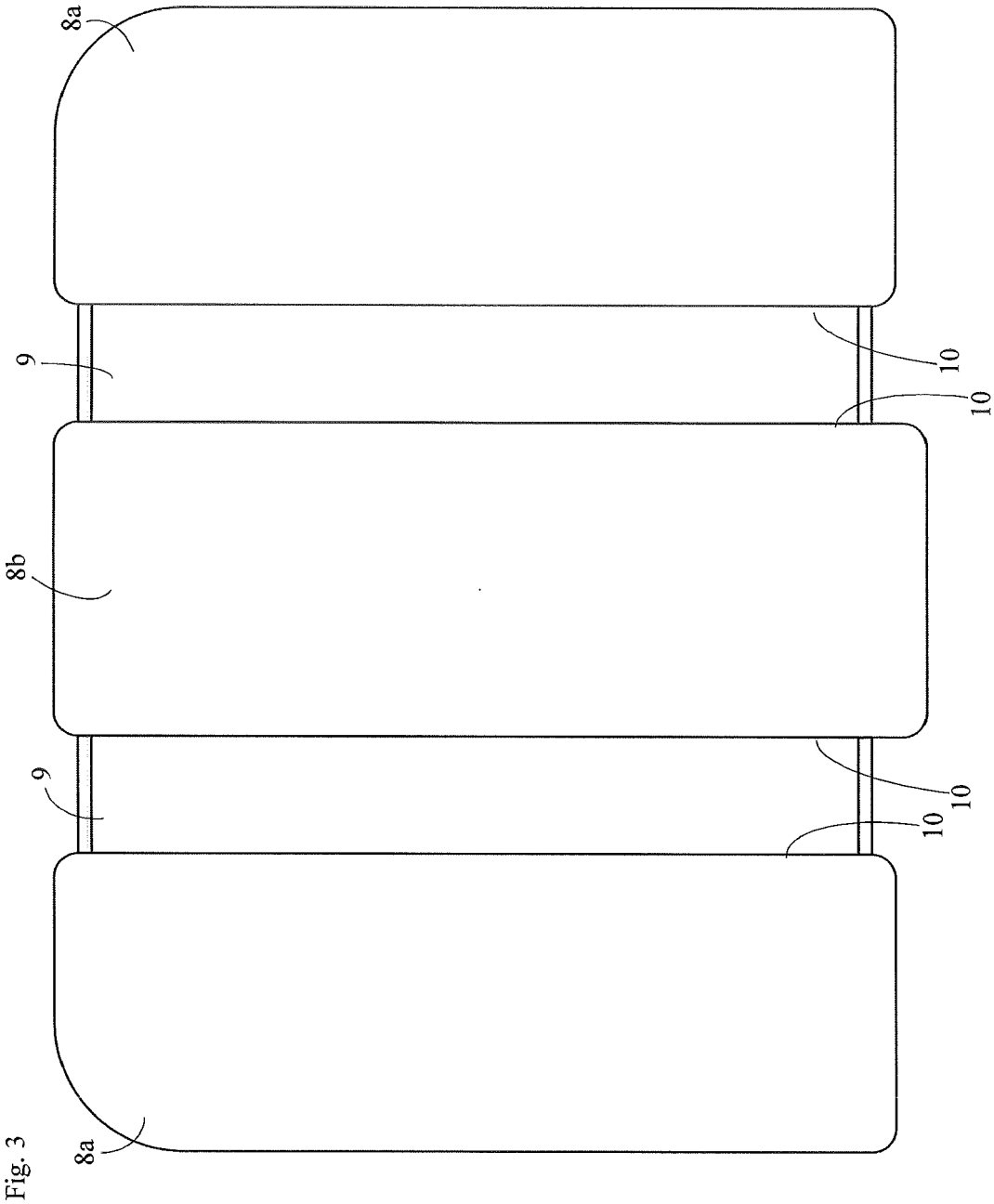
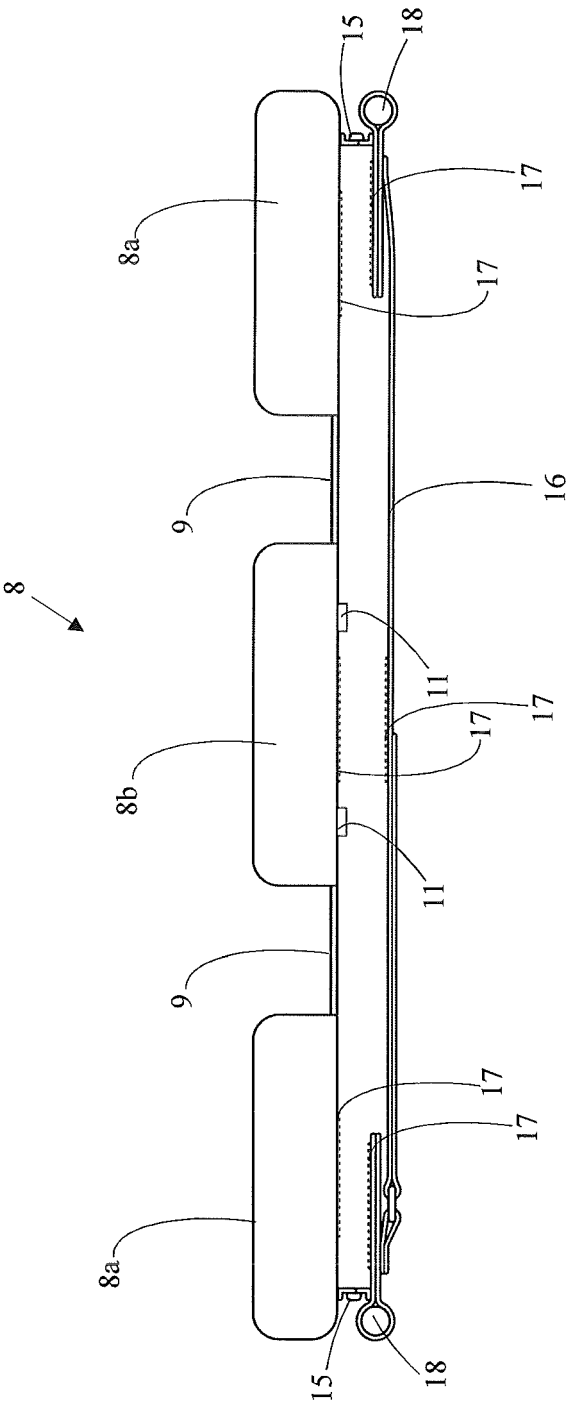


Fig. 4



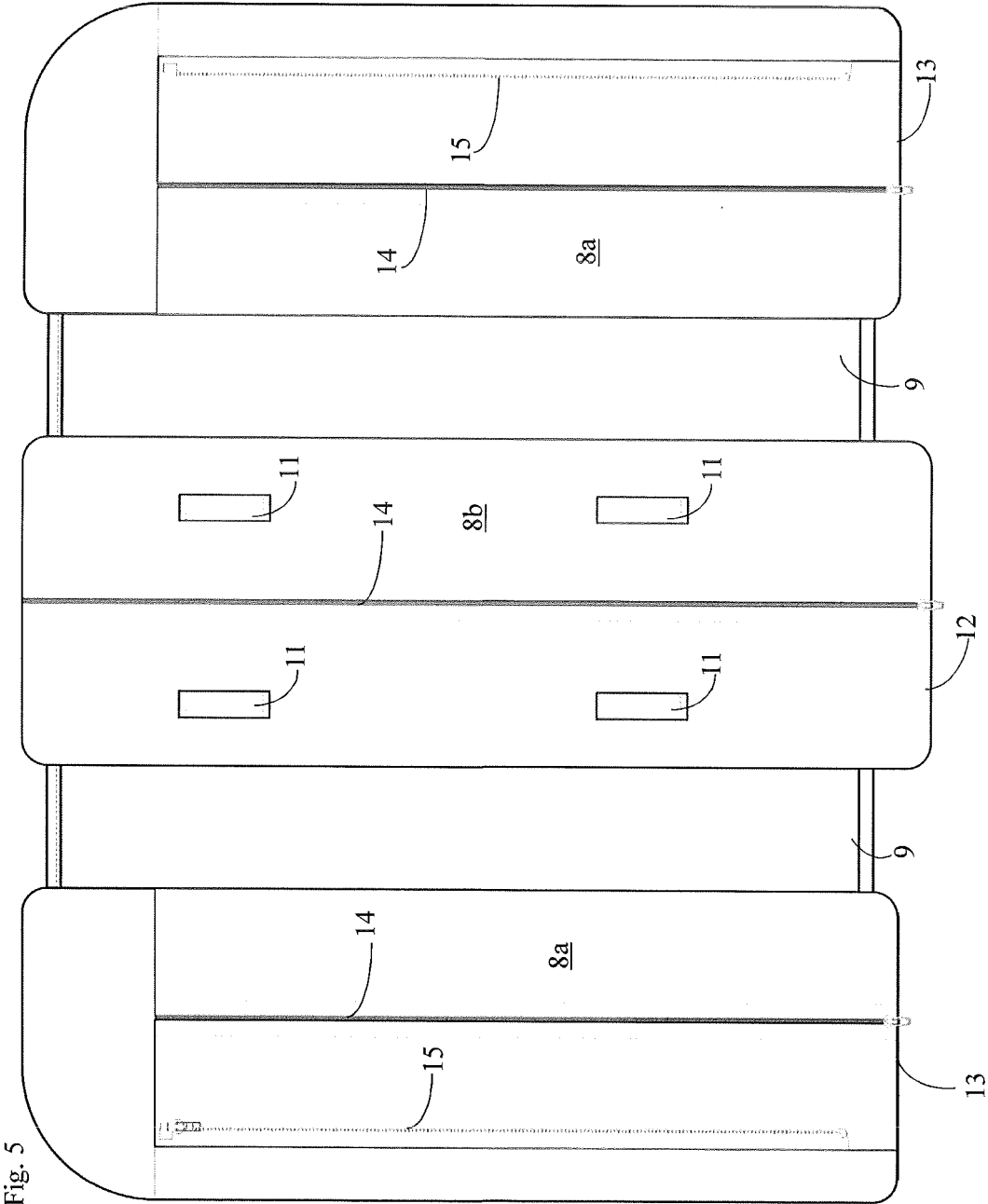
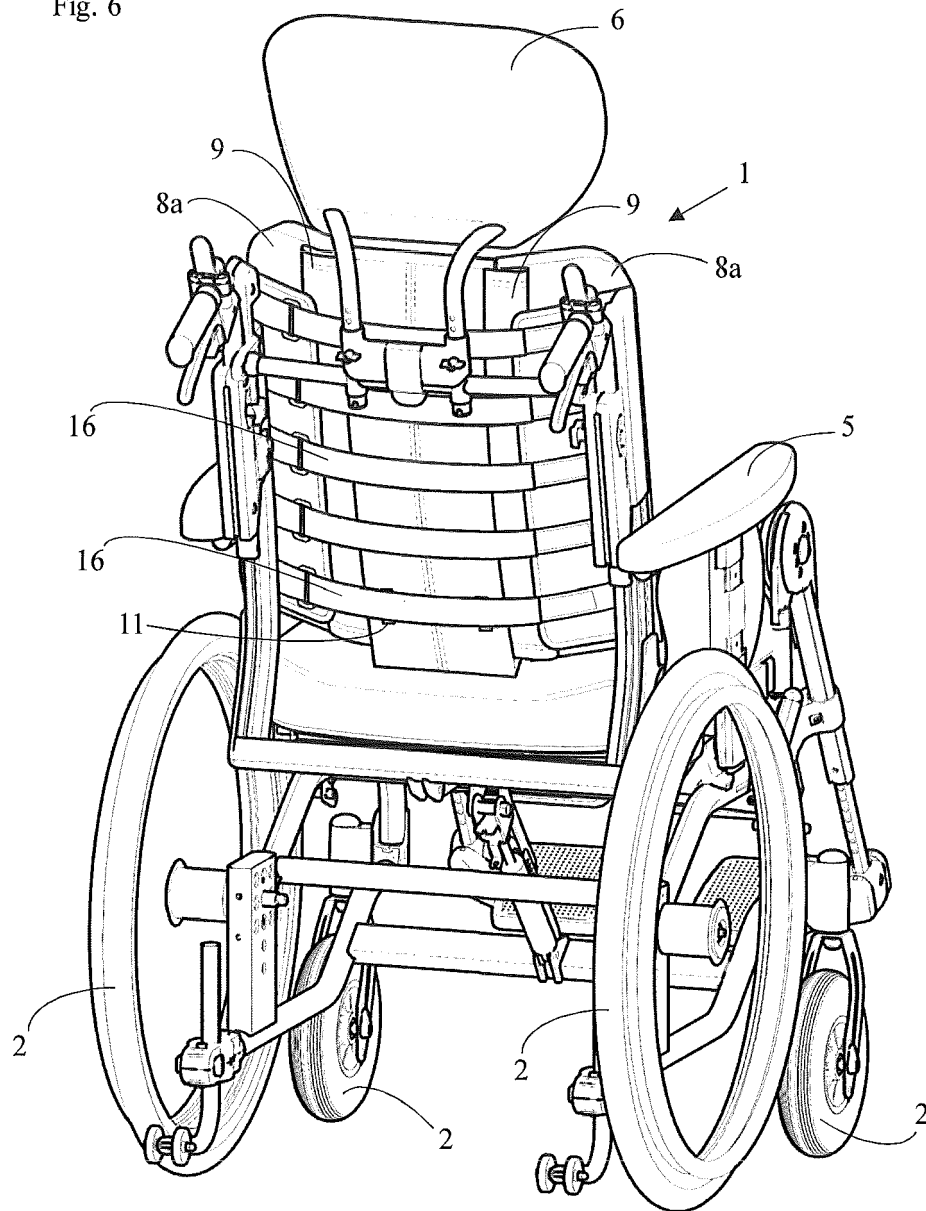


Fig. 6





EUROPEAN SEARCH REPORT

Application Number
EP 16 16 8762

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EPO FORM 1503 03/82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
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This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
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