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(54) **Ergonomic back and side support for aids to disabled and application for wheelchairs**

(57) The invention relates to a back and side support (2) for aids for disabled including wheelchairs (1), which have wheels (7) mounted to a chassis (6) where the back support and side support (2) includes at least one fork device (3), which is shaped with a lower piece (9), which is preferably cylindrical and can be placed in a bracket (4), which is fastened to the chassis (6) of the wheelchair and where the fork device (3) is shaped with a top part (8), which ramifies from the central axis of the lower piece (9) and where the fork device (3) in relation to the bracket (4) can be height adjusted and turned in a horizontal plane around the central axis of the lower piece (9) and where the position of the fork device can be fixed with a locking device (5).

The invention also includes application of back and side support (2) for wheelchairs (1), which are provided with at least one revolvable front wheel and two rear wheels.

With the invention it is achieved that it is made possible to manufacture common wheelchairs with back and side support, which simply and efficiently can be adjusted individually to the specific user such that this under all conditions is supported ergonomically optimum.

Fig. 1

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Description

[0001] The invention relates to a back and side support for aids to disabled people including wheelchairs, which have wheels mounted to a chassis.

[0002] Moreover, the invention relates to the application of back and side support for aids to disabled people.

[0003] On many aids for disabled such as wheelchairs it is often a problem that the back and side support is fixed and symmetrical in relation to the seat.

[0004] This is ergonomically inappropriate since many disabled suffer from curvatures in the back, which requires an individual adjustment of the back support and side support in order to support the person in the best way possible.

[0005] Also, the fixed back supports and side supports have the drawback that they can not be adapted to the disabled's clothes, where there will typically be thick and warm clothes in cold weather for outside use and less voluminous clothes in warm weather or by indoor use.

[0006] A fixed back and side support to for example a wheelchair will therefore in reality in the best cast only support a disabled ergonomically optimally with a specific thickness of clothes.

[0007] It is therefore an object of the invention to improve the known back support and side support for aids to disabled people.

[0008] The object of the invention is achieved by a back support and side support for aids for disabled people including wheelchairs, which have wheels mounted to a chassis of the type stated in the introduction to claim 1, which is **characterized in that** the back and the side support includes at least one fork device, which is shaped with a lower piece, which is preferably cylindrical and can be placed in a bracket, which is fastened to the wheelchair's chassis and where the fork device is shaped with a top piece, which ramifies from the central axis of the lower piece, and where the fork device in relation to the bracket can be height adjusted and turned in a horizontal plane around the central axis of the lower piece and where the fork device's position can be fixed with a locking device.

[0009] In this way it thus becomes possible to simply and efficiently adjust the back support and side support in an ergonomically optimum way to the individual disabled.

[0010] Further appropriate embodiments of the method are stated in claims 2 to 4.

[0011] As mentioned, the invention also relates to application of back and side support according to one or more of claims 1 to 4 for wheelchairs, which are provided with at least one revolvable front wheel and two rear wheels.

[0012] It hereby becomes possible to manufacture common wheelchairs with back support and side support, which can simply and efficiently be adapted individually to the specific user, such that this under all conditions are supported ergonomically optimum.

[0013] The invention will now be explained more fully with reference to the drawings, on which:

Fig. 1 shows, seen from the left side, a wheelchair with an individual adjustable back and side support.

Fig. 2 shows, seen from the left side, a section of a wheelchair with an individually adjustable back support and side support.

Fig. 3 shows, seen from the left side, a section of a wheelchair with an individually adjustable back and side support with exposed fork device.

Fig. 4 shows, seen from the left side, a section of a wheelchair with an individually adjustable back and side support with exposed fork device and dismantled rear wheel.

Fig. 5 shows, seen from above, a section of a wheelchair with an individually adjustable back and side support with exposed fork device and dismantled rear wheel.

Fig. 6 shows, as fig. 5, a section of a wheelchair with an individually adjustable back support and side support with exposed fork device and dismantled rear wheel, but where the fork device is turned to a position, which differs from the one depicted in fig. 5.

Fig. 7 shows, as fig. 5 and fig. 6, a section of a wheelchair with an individually adjustable back support and side support with exposed fork device and dismantled rear wheel, but where the fork device is turned to a position, which differs from those depicted in fig. 5 and fig. 6.

Fig. 8 shows, as fig. 4, as section of a wheelchair with an individually adjustable back support and side support with exposed fork device and dismantled rear wheel but where the fork device in fig. 8 is height adjusted in relation to the, in fig. 4., depicted position of the fork device.

Fig. 9 shows, seen in perspective, an exposed fork device mounted in the right side of a wheelchair.

Fig. 10 shows a section of the left side of a wheelchair with dismantled fork device.

Fig. 11 shows, seen from above, two exposed fork devices on a wheelchair.

Fig. 12 shows, as fig. 11, two exposed fork devices on a wheelchair where the fork devices in fig. 12 are turned in other positions than those, which are depicted in fig. 11.

[0014] On fig. 1 is with 1 shown an aid for disabled consisting of a wheelchair, which includes a chassis 6, wheels 7, a back support and side support 2, which in the sides are fastened to fork devices 3, which are mounted in brackets 4, which are fastened to the chassis 6 of the wheelchair 1.

[0015] Fig. 2 shows a section of fig. 1 where the area around the left fork device 3 is emphasised such that it for example appears from fig. 2 that the fork device 3 can be fastened in a specific position via a locking mechanism 5, which in the shown embodiment functions by fastening of the bracket 4 in which the fork device 3 is mounted.

[0016] In fig. 3, the left fork device 3 is exposed since the back support and side support 2 is removed.

[0017] In fig. 4 is shown the same section of the wheelchair's left side, which is also shown in fig. 3, but where the wheelchair's left rear wheel 7 is dismantled in fig. 4.

Fig. 5 shows, seen from above, a section of a wheelchair 1 with exposed fork device 3 and dismantled rear wheel 7.

Fig. 6 shows, as fig. 5, a section of a wheelchair 1 with exposed fork device 3 and dismantled rear wheel 7, but where the fork device is turned to a position, which differs from the one depicted in fig. 5.

[0018] In fig. 7 is shown a depiction, as the one in fig. 5 and fig. 6, but where the fork device 3 is turned to a position, which differs from the one depicted in fig. 5 and fig. 6.

[0019] In fig. 8 is shown a section of an exposed fork device 3, which is mounted in the left side of a wheelchair 1, similar to the depiction in fig. 4, but where the fork device 3 in fig. 8 is raised in relation to the position of the fork device, which is depicted in fig. 4.

[0020] In fig. 8 it is furthermore seen clearly that the fork device 3 is shaped with a lower, preferably cylindrical, lower piece 9, out from which a top piece 8 ramifies, where the preferably cylindrical lower piece 9 is mounted in a bracket 4, which is fastened to the chassis 6 of the wheelchair.

[0021] From fig. 8 furthermore appears that the top piece 8 of the fork device 3 in the shown preferred embodiment, is provided with an end plug 10, which can be manufactured from a polymeric material.

[0022] Fig. 9 shows, seen in perspective, a section of the right side of a wheelchair 1, where a fork device 3 is mounted, which can form right sided attachment for a back support and side support 2, where the fork device 3 is mounted in a bracket 4 and can be fastened in a specific position by activation of a locking mechanism 5.

[0023] In fig. 10 is shown a dismantled fork device 3 from which it is seen that the fork device in the shown preferred embodiment consists of a preferably cylindrical lower piece 9, which from a point 11 ramifies in a top piece 8.

[0024] Fig. 11 shows, seen from above, the two fork devices 3, which are placed in respectively the left and right side of a wheelchair 1, and which is each fastened in a specific position via locking mechanisms 5.

[0025] In fig. 12 is shown the same type of depiction as in fig. 11, but where the fork devices 3 in fig. 12 are turned in other positions than the ones which are shown in fig. 11.

[0026] From the above description, it can thus be stated that the invention includes back support and side support 2 for aids for disabled including wheel chairs 1, which have wheels 7 mounted to a chassis 6, where the back support and side support 2 includes at least one fork device 3, which is shaped with a lower piece 9, which is preferably cylindrical and can be placed in or on a bracket 4, which is fastened to the chassis 6 of the wheelchair, and where the fork device 3 is shaped with a top piece 8, which ramifies from the central axis of the lower piece 9 and where the fork device 3 in relation to the bracket 4 can be height adjusted and turned in a horizontal plane around the central axis of the lower piece 9, and where the position of the fork device can be fixed with a locking device 5.

[0027] In a preferred embodiment, the back support and side support 2 includes exactly two fork devices 3, which are manufactured by application of pipes including preferably metallic pipes.

Claims

1. Back support and side support (2) for aids for disabled people including wheelchairs (1), which have wheels (7) mounted to a chassis (6) **characterized in that** the back and the side support (2) includes at least one fork device (3), which is shaped with a lower piece (9), which is preferably cylindrical and can be placed in a bracket (4), which is fastened to the wheelchair's chassis (6) and where the fork device (3) is shaped with a top piece (8), which ramifies from the central axis of the lower piece (9), and where the fork device (3) in relation to the bracket (4) can be height adjusted and turned in a horizontal plane around the central axis of the lower piece (9) and where the fork device's position can be fixed with a locking device (5).

2. Back support and side support (2) according to claim 1 **characterized in that** the back and side support (2) includes two fork devices (3).

3. Back and side support (2) according to claim 1 or 2 **characterized in that** the fork device (3) is manufactured by application of pipes including preferably metallic pipes.

4. Back and side support (2) according to one or more of claims 1 to 3 **characterized in that** the top piece (8) of the fork device (3) is provided with an end plug

(10) which is preferably manufactured from a polymeric material.

5. Application of back and side support (2) according to one or more of claims 1 to 4 for wheelchairs (1), which are provided with at least one revolvable front wheel and two rear wheels.

Fig. 1

Fig. 2

Fig. 3

Fig. 4

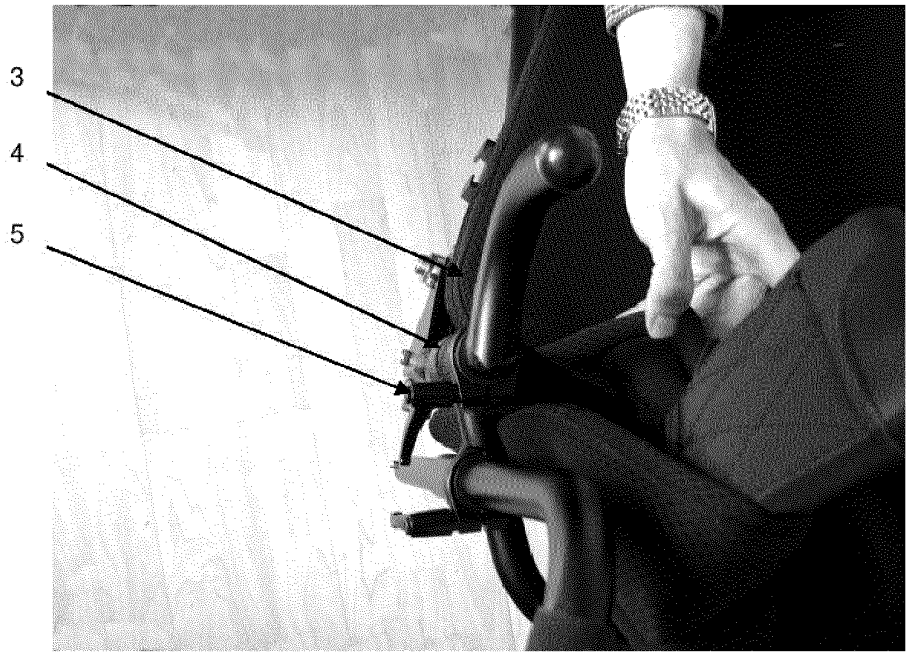

Fig. 5

Fig. 6

Fig. 7

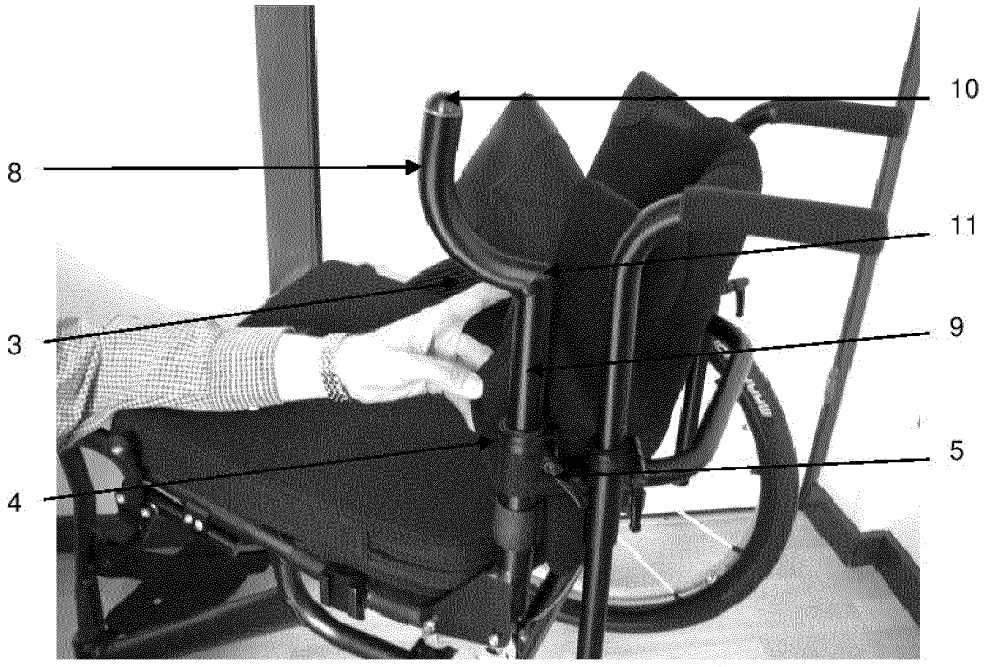

Fig. 8

Fig. 9

Fig. 10

Fig. 11

Fig. 12

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EUROPEAN SEARCH REPORT

Application Number
EP 13 16 6967

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
X	US 6 416 070 B1 (LIN SHIH-CHIANG [TW]) 9 July 2002 (2002-07-09) * column 3, lines 17-51; figures 1,3,8 *	1-5	INV. A61G5/12
X	AU 2008 201 511 B1 (HENRY ENAHORO) 22 January 2009 (2009-01-22) * figures 1,4,5 * * page 5, line 9 - page 6, line 8 *	1-4	
A	US 4 073 537 A (HAMMERSBURG DON D) 14 February 1978 (1978-02-14) * the whole document *	1	
A	NL 1 027 334 C2 (COMMANDITAIRE VENNOOTSCHAP BIN [NL]) 26 April 2006 (2006-04-26) * figures *	1	

TECHNICAL FIELDS SEARCHED (IPC)

A61G

The present search report has been drawn up for all claims

Place of search	Date of completion of the search	Examiner
The Hague	16 August 2013	Mammeri, Damya

CATEGORY OF CITED DOCUMENTS

X : particularly relevant if taken alone
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A : technological background
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E : earlier patent document, but published on, or after the filing date
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ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 13 16 6967

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
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16-08-2013

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6416070 B1	09-07-2002	NONE	
AU 2008201511 B1	22-01-2009	NONE	
US 4073537 A	14-02-1978	NONE	
NL 1027334 C2	26-04-2006	NONE	

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For more details about this annex : see Official Journal of the European Patent Office, No. 12/82