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(71) Applicant: **Blanco, Adolfo**
Miami, FL 33173 (US)

(72) Inventor: **Blanco, Adolfo**
Miami, FL 33173 (US)

(74) Representative: **Urizar Anasagasti, Jesus Maria**
IPAMARK, S.L.
Paseo de la Castellana 72 1°
28046 Madrid (ES)

(54) **BILATERALLY SHIFTING WHEELCHAIR SEAT**

(57) A universal bilaterally shifting wheelchair seat assembly that uses a battery powered control unit assembly including an electrical motor to bilaterally displace a wheelchair seat a predetermined distance to help prevent pressure ulcers. The control unit assembly is connected to an actuating disk using a shaft that travels through a channel in the wheelchair seat. The actuating disk includes an actuating rod mounted to the bottom of the seat that bilaterally moves the seat upon the actuating disk's rotational movement. The wheelchair seat can include an electrical regulator that a user can adjust to modulate the frequency and speed of the seat's displacement.

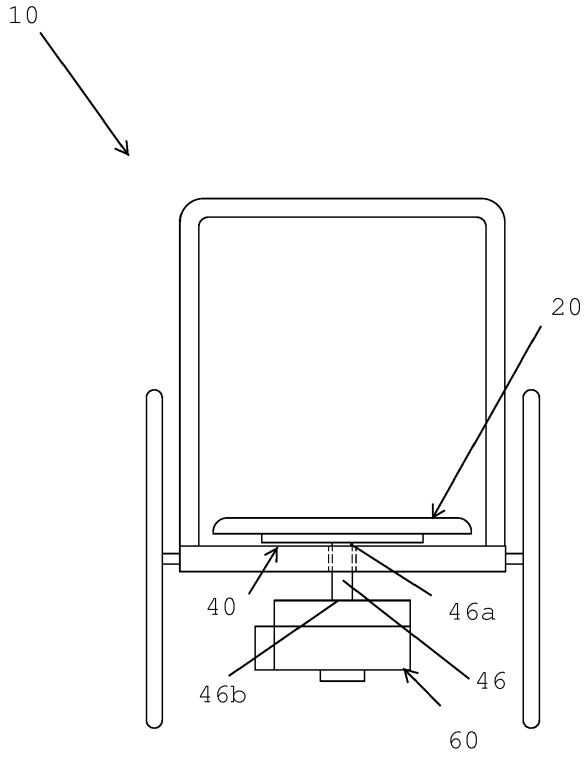

FIG. 1

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Description

II. BACKGROUND OF THE INVENTION

1. Field of the Invention.

[0001] The present invention relates to a wheelchair seat and, more particularly, to a wheelchair seat that is displaced from its original position sufficiently to help prevent complications associated with pressure ulcers in wheelchair bound patients.

2. Description of the Related Art.

[0002] Several designs for adjustable wheelchair seats have been designed in the past. None of them, however, include an actuating assembly that displaces the seat laterally so that a user does not continually spend great amounts of time in a fixed, single position.

[0003] Applicant believes that a related reference corresponds to U.S. patent application No. US20050279540 issued to Donald Wisner. However, it differs from the present invention because the Wisner reference moves the seat forward and back as well as tilting the seat. The present invention utilizes many less components and is focused on moving the seat in a bilateral motion a predetermined distance sufficient to prevent pressure ulcers.

[0004] Other documents describing the closest subject matter provide for a number of more or less complicated features that fail to solve the problem in an efficient and economical way. None of these patents suggest the novel features of the present invention.

III. SUMMARY OF THE INVENTION

[0005] It is one of the main objects of the present invention to provide a moving seat assembly that shifts laterally in a bilateral motion a sufficient distance displacing a user's weight on the seat thereby helping to prevent pressure ulcers.

[0006] It is another object of this invention to provide a moving seat assembly that cooperates with a control unit to bilaterally shift the seat at a preselected frequency that can be controlled by a user.

[0007] It is still another object of the present invention to provide a moving seat assembly actuated by a motor that can be powered by a battery to ensure independent wheelchair mobility.

[0008] It is yet another object of this invention to provide such a device that is inexpensive to implement and maintain while retaining its effectiveness.

[0009] Further objects of the invention will be brought out in the following part of the specification, wherein detailed description is for the purpose of fully disclosing the invention without placing limitations thereon.

IV. BRIEF DESCRIPTION OF THE DRAWINGS

[0010] With the above and other related objects in view, the invention consists in the details of construction and combination of parts as will be more fully understood from the following description, when read in conjunction with the accompanying drawings in which:

Figure 1 represents a front elevational view of the present invention having seat assembly **20** mounted to a wheelchair using actuating assembly **40.**

Figure 2 is a see-through view of seat assembly **20** to show actuating member **40** in its starting position.

Figure 2A is a see-through view of seat assembly **20** to show actuating member **40** in its displaced position thereby laterally shifting seat assembly **20** to the left a predetermined distance.

Figure 2B is a see-through view of seat assembly **20** to show actuating member **40** still in its displaced position as link member **42** rotates around actuating disk **44.**

Figure 2C is a see-through view of seat assembly **20** to show actuating member **40** in its retracted or original position and seat assembly **20** has been laterally shifted again to its starting point.

Figure 3 is a representation of an operating diagram of seat assembly **20** showing how it displaces while mounted to a wheelchair.

Figure 4 is a side partial view of a wheelchair having the present invention with all of its components mounted thereon.

V. DETAILED DESCRIPTION OF THE EMBODIMENTS OF THE INVENTION

[0011] Referring now to the drawings, where the present invention is generally referred to with numeral **10,** it can be observed that it basically includes seat assembly **20,** actuating assembly **40,** and control unit assembly **60.**

[0012] As shown in figure 1, seat assembly **20** includes seat member **22** that is positioned on the seat **12** of a wheelchair **14.** As shown on figures 2 - 2C, seat member **22** is mounted at its bottom surface to first distal end **41** of actuating rod **42** at a predetermined location on the bottom surface to cooperate for effective bilateral movement.

[0013] Second distal end **43** of actuating rod **42** is mounted to actuating disk **44** that rotates in a clockwise or counterclockwise manner to urge actuating rod **42** to move seat member **22** laterally to the right or left, as shown in figures 2- 3. This movement shifts seat member

22 laterally a given direction under a user to prevent pressure ulcers from forming on the user's body.

[0014] As seen in figures 1 and 4, actuating disk **44** is perpendicularly mounted to a first shaft end **46a** of rotating longitudinal shaft **46,** which is mounted at its second opposite shaft end **46b** to control unit assembly **60.** Rotating longitudinal shaft **46** passes through seat opening **12a** as it connects actuating disk **44** to control unit assembly **60.**

[0015] Control unit assembly **60** includes housing **62** that houses electric motor **63,** motor speed reducer **64,** rechargeable battery **66,** and motor regulator **68.** Motor **63** causes shaft **46** to rotate thereby rotating actuating disk **44** and moving actuating rod **42** to shift the positioning of seat **22.** Reducer **64** reduces the speed at which actuating disk **44** rotates to provide a slower lateral movement to seat member **22.** Motor speed regulator **68** allows a user to control the frequency and speed of the rotational movement of actuating disk **44.** In addition, motor speed regulator **68** controls the amount of clockwise or counterclockwise motion of actuating disk **44,** thereby controlling the displacement distance of bilateral shifting by seat member **22.**

[0016] In an alternate embodiment, actuating disk **44** and/or actuating rod **42** can be of varying dimensions depending on the amount of displacement desired of seat member **22.** The foregoing description conveys the best understanding of the objectives and advantages of the present invention. Different embodiments may be made of the inventive concept of this invention. It is to be understood that all matter disclosed herein is to be interpreted merely as illustrative, and not in a limiting sense.

Claims

1. A wheelchair seat assembly comprising:

a seat member having a bottom surface further including an actuating rod having a first end and second end, said first end mounted to said bottom surface at a predetermined position to allow for effective bilateral movement of said seat member, an actuating disk having a top and bottom surface, said second end of said actuating rod mounted to a predetermined point on said actuating disk's top surface that cooperates with the effective bilateral movement of said seat member, a channel extending longitudinally through said seat member, a shaft having a first and second end, said shaft's first end mounted to said actuating disk's bottom surface, said shaft extending perpendicularly therefrom, through said channel, and having said second end perpendicularly mounted to a control unit assembly, said control unit assembly including a housing that houses a motor and a battery, said motor rotates said shaft to cause said actuating disk to rotate and urge said actuating rod in a predetermined lateral direction, thereby displacing said seat member a predetermined distance.

2. The wheelchair seat assembly subject of claim 1 wherein said control unit assembly includes a motor speed reducer that reduces the speed of said shaft's rotation.

3. The wheelchair seat assembly subject of claim 1 wherein said control unit assembly includes a motor regulator that regulates the frequency and speed of said shaft's rotation, thereby regulating the frequency and speed of said seat member's displacement.

4. The wheelchair seat assembly subject of claim 1 wherein said battery is rechargeable.

5. The wheelchair seat assembly subject of claim 1 wherein said actuating disk is of a larger dimension to displace said seat member a greater amount.

6. The wheelchair seat assembly subject of claim 1 wherein said actuating rod is of a larger dimension to displace said seat member a greater amount.

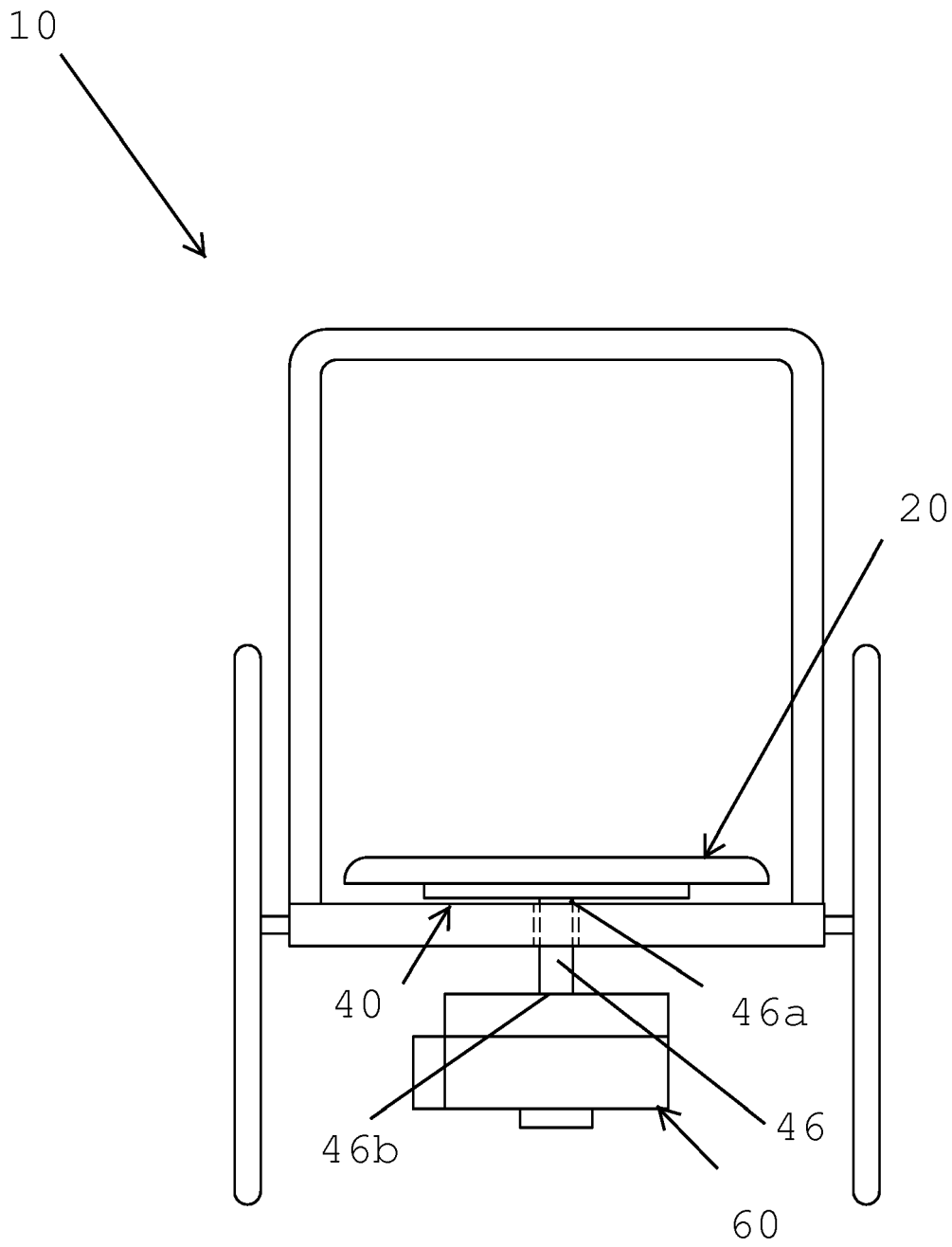

FIG. 1

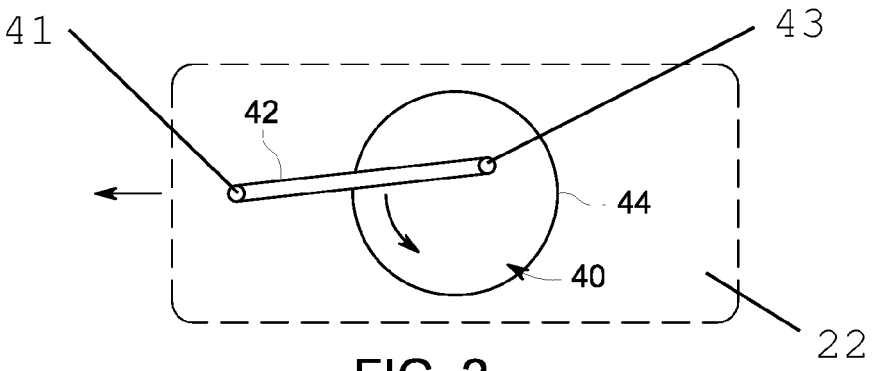

FIG. 2

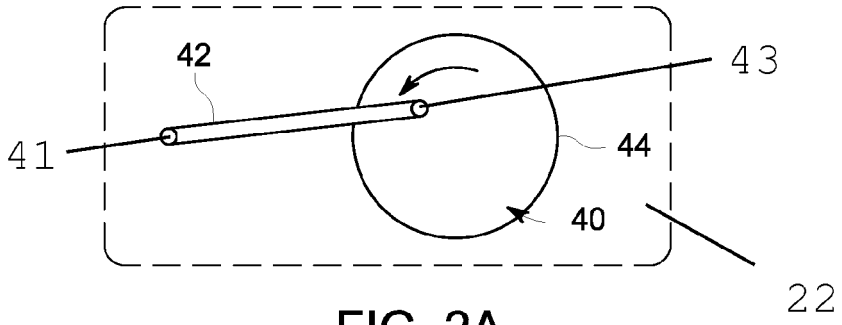

FIG. 2A

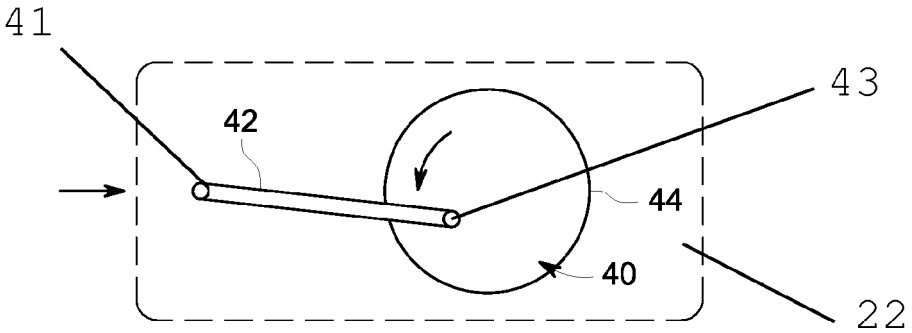

FIG. 2B

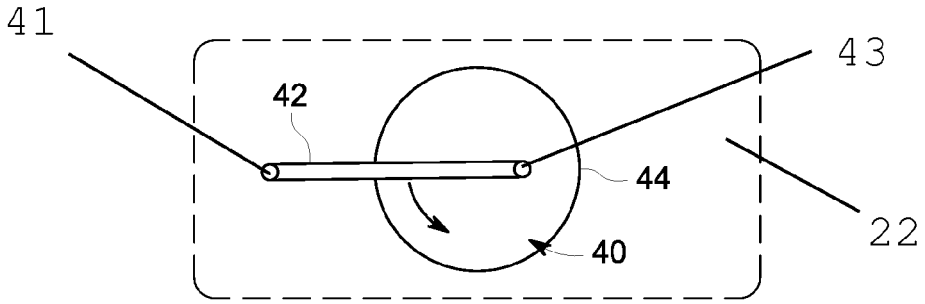

FIG. 2C

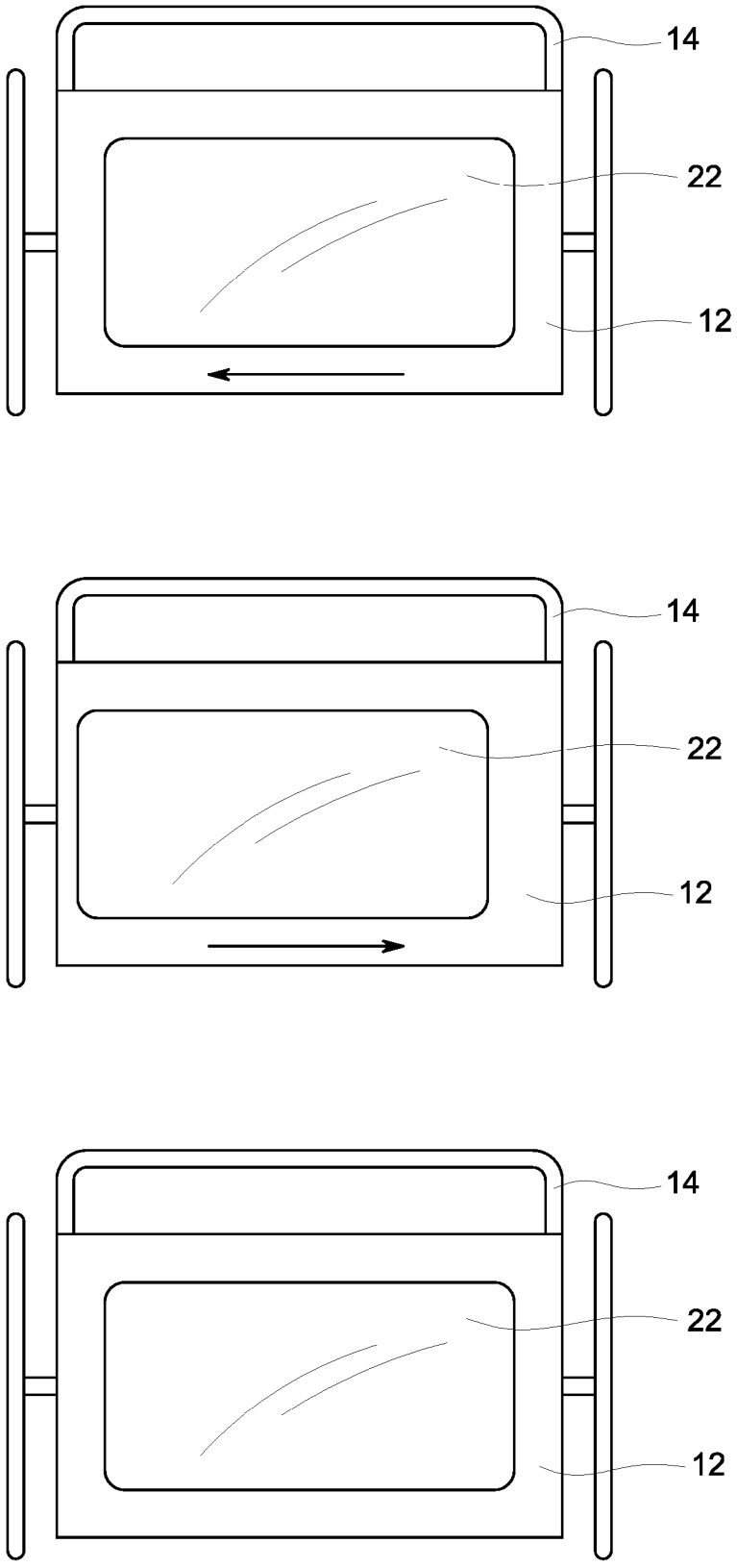

FIG. 3

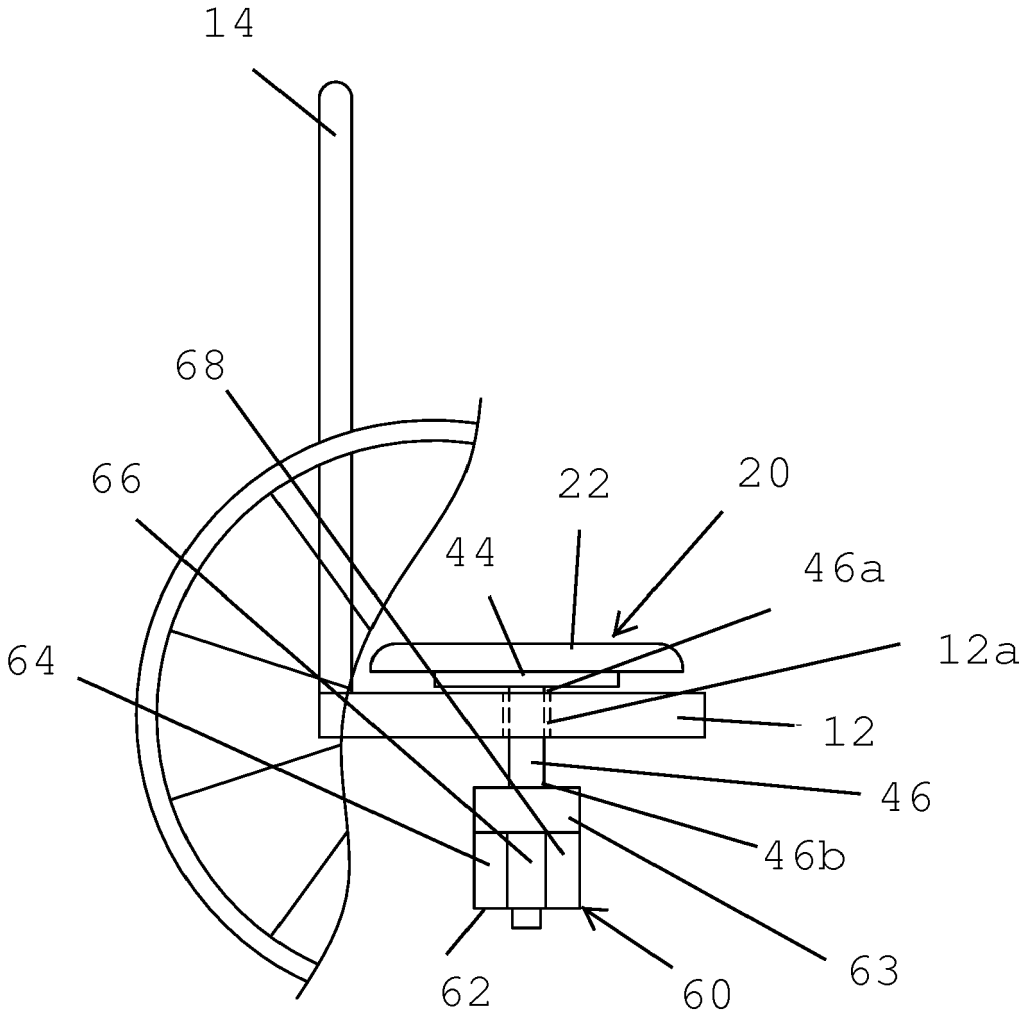

FIG. 4

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EUROPEAN SEARCH REPORT

Application Number
EP 17 17 5621

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (IPC)
A	DE 10 2013 015816 A1 (OTTO BOCK MOBILITY SOLUTIONS GMBH [DE]) 26 March 2015 (2015-03-26) * paragraph [0024] - paragraph [0027] * * figures 1-6 *	1-6	INV. A61G5/10 A61G7/057 ADD. A61G5/12
A	WO 93/00060 A1 (TARTAN REHAB LIMITED [CA]) 7 January 1993 (1993-01-07) * page 9 - page 14 * * figures 1-15 *	1	
A	US 8 684 398 B1 (NYITRAY MICHAEL [US]) 1 April 2014 (2014-04-01) * column 2 - column 9 * * figures 6-9 *	1	
A	US 2012/292883 A1 (NOONAN MARK [US] ET AL) 22 November 2012 (2012-11-22) * paragraph [0029] - paragraph [0072] * * figures 1-16 *	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	30 November 2017	Schiffmann, Rudolf

CATEGORY OF CITED DOCUMENTS

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EPO FORM 1503 03.82 (P04C01)

ANNEX TO THE EUROPEAN SEARCH REPORT ON EUROPEAN PATENT APPLICATION NO. EP 17 17 5621

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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30-11-2017

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
DE 102013015816 A1	26-03-2015	NONE	
WO 9300060 A1	07-01-1993	NONE	
US 8684398 B1	01-04-2014	EP 3010468 A1	27-04-2016
		US 8684398 B1	01-04-2014
		US 2014367944 A1	18-12-2014
		WO 2014204976 A1	24-12-2014
US 2012292883 A1	22-11-2012	US 2012292883 A1	22-11-2012
		WO 2011100556 A2	18-08-2011

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

REFERENCES CITED IN THE DESCRIPTION

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Patent documents cited in the description

- US 20050279540 A, Donald Wisner **[0003]**