

## Title (en)

WHEELCHAIR DYNAMIC SEATING SYSTEM SUITABLE FOR DYSTONIC DISEASE

## Title (de)

DYNAMISCHES ROLLSTUHLSTITZSYSTEM FÜR DYSTONIE

## Title (fr)

SYSTÈME DE SIÈGE DYNAMIQUE D'UN FAUTEUIL ROULANT APPROPRIÉ POUR UNE MALADIE DYSTONIQUE

## Publication

**EP 2836184 A4 20151007 (EN)**

## Application

**EP 13775228 A 20130411**

## Priority

- IT PI20120042 A 20120412
- IB 2013000784 W 20130411

## Abstract (en)

[origin: WO2013153446A1] The present device is intended to ameliorate the strains caused by spasms and dystonias (especially those related to extension) in diseased subjects in particular when they are seated onto dynamic seating systems, such as push or motorized wheelchairs. Disease affecting the central nervous system (head- brain traumas, children brain paralysis, evolutionary disease of the central nervous system, etc.) generally have serious consequences especially affecting the musculoskeletal system. Some of these prevent voluntary control of the muscles of the trunk and lower limbs, and the diseased subjects suffer from acute muscle contractions. The device allows for controlled disarticulation, by means of calibrated springs and dampeners, of all the wheelchair components on which the strains and tensions of the user are discharged. In particular, an object of the present invention is the articulation of the footrest (extension and rotation), the articulation of the footrest itself (for the extension of the leg at the knee level), the rotation of the seat pan and backrest, and the articulation of the headrest. It is worth noting that the novelty of the device lies in the synergy among these articulations. Although these articulations have already been partially implemented in other wheelchairs, only in this device they are implemented all together to The present device is intended to ameliorate the strains caused by spasms and dystonias (especially those related to extension) in diseased subjects in particular when they are seated onto dynamic seating systems, such as push or motorized wheelchairs. Disease affecting the central nervous system (head- brain traumas, children brain paralysis, evolutionary disease of the central nervous system, etc.) generally have serious consequences especially affecting the musculoskeletal system. Some of these prevent voluntary control of the muscles of the trunk and lower limbs, and the diseased subjects suffer from acute muscle contractions. The device allows for controlled disarticulation, by means of calibrated springs and dampeners, of all the wheelchair components on which the strains and tensions of the user are discharged. In particular, an object of the present invention is the articulation of the footrest (extension and rotation), the articulation of the footrest itself (for the extension of the leg at the knee level), the rotation of the seat pan and backrest, and the articulation of the headrest. It is worth noting that the novelty of the device lies in the synergy among these articulations. Although these articulations have already been partially implemented in other wheelchairs, only in this device they are implemented all together to eliminate any point of strain of the patient onto the wheelchair. Furthermore, the particular implementation set forth makes the modular system adaptable to different dynamic seating systems and adjustable both following the anthropometric sizes of the patients and the intensity of their spasms.

## IPC 8 full level

**A61G 5/12** (2006.01); **A61G 5/10** (2006.01); **A61G 5/04** (2013.01)

## CPC (source: EP)

**A61G 5/1056** (2013.01); **A61G 5/12** (2013.01); **A61G 5/121** (2016.10); **A61G 5/122** (2016.10); **A61G 5/125** (2016.10); **A61G 5/127** (2016.10); **A61G 5/128** (2016.10); **A61G 5/04** (2013.01)

## Citation (search report)

- [A] US 2004084950 A1 20040506 - MARKWALD MICHAEL [DE]
- [A] EP 1453461 A1 20040908 - HELPING HAND CO LEDBURY [GB]
- [A] WO 0143685 A1 20010621 - REHATECHNIK MOELLER GMBH [DE], et al
- [Y] EP 2389915 A1 20111130 - VASSILLI SRL [IT]
- [Y] JAMES PATRICK KITCHEN: "Design of Wheelchair Seating Systems for Users with High-Tone Extensor Thrust", 22 May 2006 (2006-05-22), XP055046859, Retrieved from the Internet <URL:http://rearlab.gatech.edu/publications/kitchen\_james\_p\_200608\_mast.pdf> [retrieved on 20121206]
- [YD] DAVID COOPER ET AL: "Dynamic Seating Components for the Reduction of Spastic Activity and Enhancement of Function", 1 January 2001 (2001-01-01), Orlando, Florida U.S.A., pages 51 - 57, XP055046865, Retrieved from the Internet <URL:http://www.iss.pitt.edu/ISS\_Pre/ISS\_Pre\_Doc/ISS\_2001.pdf> [retrieved on 20121206]
- [AD] "Miller's Adaptive Technologies - Product catalog", 4 October 2011 (2011-10-04), pages 14, 25 - 26, XP055046870, Retrieved from the Internet <URL:http://www.millersadaptive.com/Catalog/Dynamic%20Solutions%2025-26.pdf> [retrieved on 20121206]
- See references of WO 2013153446A1

## Cited by

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## DOCDB simple family (application)

