

Title (en)

A MOVEMENT ASSISTIVE DEVICE FOR THE ELBOW JOINT

Title (de)

BEWEGUNGSUNTERSTÜTZUNGSVORRICHTUNG FÜR DAS ELLENBOGENGELLENK

Title (fr)

DISPOSITIF D'AIDE AU MOUVEMENT POUR ARTICULATION DU COUDE

Publication

EP 4144331 A1 20230308 (EN)

Application

EP 22194044 A 20220906

Priority

IT 202100023081 A 20210907

Abstract (en)

A movement assistive device (1) for the elbow joint, comprising: an actuation unit (20) provided with a motor (2); at least two arm garments (3,4,3',4') removably attachable to an arm of the wearer; at least one transmission cable (5, 5'); wherein the actuation unit (20) comprises: at least one elastic element (6) coupled with the motor (2) and configured to generate, under tension, an elastic force, the at least one transmission cable (5, 5') connecting the at least one elastic element (6) to the at least two arm garments (3,4,3',4') to apply the assistive torque to the wearer arm; at least one cam-spool mechanism (7,7') configured to elongate the at least one elastic element (6) as a function of human elbow torque/angle profile, wherein each cam-spool mechanism (7,7') comprises: a cam curve (8) with rotatable camshaft (9) to move a respective transmission cable (5, 5') around the cam curve (8); a roller (10) and a spool (11) provided with a slot (12), the spool (11) being coupled with the camshaft (9) through a roller (10) that can slide inside the slot (12); wherein the rotation axis of the camshaft (9) is decoupled and offset from the rotation axis of the spool (11).

IPC 8 full level

A61H 1/02 (2006.01)

CPC (source: EP)

A61H 1/0277 (2013.01); **A61H 2201/1215** (2013.01); **A61H 2201/1418** (2013.01); **A61H 2201/1614** (2013.01); **A61H 2201/1635** (2013.01); **A61H 2201/165** (2013.01)

Citation (applicant)

- WO 2017026943 A1 20170216 - UNIV NANYANG TECH [SG], et al
- WO 2014151584 A1 20140925 - ALTERG INC [US]
- US 2020000670 A1 20200102 - XIONG CAIHUA [CN], et al
- WO 2018165413 A1 20180913 - ABILITECH MEDICAL INC [US]
- US 2020261298 A1 20200820 - KIM KYU JUNG [KR], et al

Citation (search report)

- [A] WO 2017026943 A1 20170216 - UNIV NANYANG TECH [SG], et al
- [A] WO 2014151584 A1 20140925 - ALTERG INC [US]
- [A] US 2020000670 A1 20200102 - XIONG CAIHUA [CN], et al
- [A] WO 2018165413 A1 20180913 - ABILITECH MEDICAL INC [US]
- [A] US 2020261298 A1 20200820 - KIM KYU JUNG [KR], et al

Designated contracting state (EPC)

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