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Declarations under Rule 4.17:

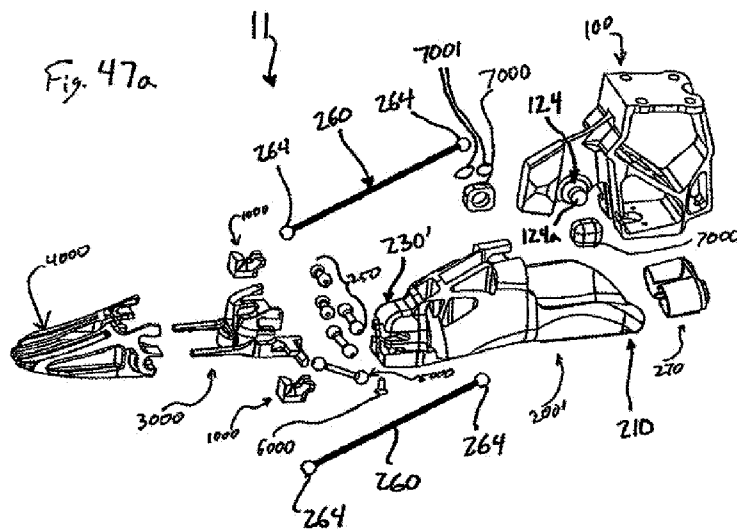
- as to the identity of the inventor (Rule 4.17(i))
- as to applicant's entitlement to apply for and be granted a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

- with international search report (Art. 21(3))

[Continued on next page]

(54) **Title:** JOINTS FOR PROSTHETIC, ORTHOTIC AND/OR ROBOTIC DEVICES



(57) **Abstract:** An artificial foot device may include a talus body (100), a core (200) operatively coupled with the talus body by a first joint (12), and a toe (300) operatively coupled with the core by a second joint (14). A vertical restraint link (5000) between the toe and the core and provides a coupling for the second joint. A toe insert (3000) limits motion of the toe relative to the core. A toe bushing (1000) receives a tension member for operatively coupling the toe to the talus body. The vertical restraint link, toe insert and bushing constrains relative movement between the core and the toe at the second joint. Relative movement of the core and the talus body at the first joint is guided and constrained by pivot bearings (7000). Constrained relative movement between the talus body and the core corresponds to a coordinated movement of a first joint and a second joint during ambulation of a natural human foot.



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— *before the expiration of the time limit for amending the claims and to be republished in the event of receipt of amendments (Rule 48.2(h))*

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INTERNATIONAL SEARCH REPORT

International application No
PCT/US2011/025528

A. CLASSIFICATION OF SUBJECT MATTER
 INV. A61F2/66
 ADD.
 According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED
 Minimum documentation searched (classification system followed by classification symbols)
 A61F

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practical, search terms used)
 EPO-Internal, WPI Data

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 809 875 A (WILKINS G.E.) 9 January 1906 (1906-01-09) the whole document	1-7
X	WO 89/05617 A1 (COLLEGE PARK PROSTHETICS INC [US]) 29 June 1989 (1989-06-29) page 5 - page 8	1-7
X	US 5 913 902 A (GEIBLE HARRY F [US]) 22 June 1999 (1999-06-22) column 4, line 54 - column 6, line 20	1-3,5,6

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

<p>"A" document defining the general state of the art which is not considered to be of particular relevance</p> <p>"E" earlier document but published on or after the international filing date</p> <p>"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)</p> <p>"O" document referring to an oral disclosure, use, exhibition or other means</p> <p>"P" document published prior to the international filing date but later than the priority date claimed</p>	<p>"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention</p> <p>"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone</p> <p>"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art.</p> <p>"&" document member of the same patent family</p>
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Date of the actual completion of the international search
 11 May 2011

Date of mailing of the international search report
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INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2011/025528

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

see additional sheet

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying an additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:
4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

1-7

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

This International Searching Authority found multiple (groups of) inventions in this international application, as follows:

1. claims: 1-7

An artificial foot device, comprising a toe pivotably coupled with a core at a joint, and a vertical restraint link extending across said joint to limit the motion of the toe in a vertical direction.

2. claims: 8-12

An artificial foot device, comprising a talus body, a core pivotably coupled with the talus body at a first joint, a toe pivotably coupled with the core at a second joint, and a tension member coupling the toe to the talus body.

3. claims: 13-20

An artificial foot device, comprising a talus body, a core pivotably coupled with the talus body at a first joint, and a biasing assembly acting between the talus and the core at a first joint, said biasing assembly providing a torque response for the artificial foot device.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2011/025528

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 809875	A	NONE	

WO 8905617	A1	29-06-1989	
		DE 3891184 B4	12-04-2007
		DE 3891184 T1	31-07-1997
		US 4892554 A	09-01-1990

US 5913902	A	22-06-1999	NONE
