

(12) INTERNATIONAL APPLICATION PUBLISHED UNDER THE PATENT COOPERATION TREATY (PCT)

(19) World Intellectual Property Organization
International Bureau



WIPO | PCT

**(43) International Publication Date
21 May 2015 (21.05.2015)**

**(10) International Publication Number
WO 2015/073792 A3**

WO 2015/073792 A3

(51) International Patent Classification:
A61G 1/056 (2006.01)

(81) **Designated States** (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY, BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM, DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN, HR, HU, ID, IL, IN, IR, IS, JP, KE, KG, KN, KP, KR, KZ, LA, LC, LK, LR, LS, LU, LY, MA, MD, ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, SA, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

(21) International Application Number: PCT/US2014/065649

(22) International Filing Date: 14 November 2014 (14.11.2014)

(25) Filing Language:	English
(26) Publication Language:	English

(10) Publication Language: English

(30) Priority Data: 61/904,694 15 November 2013 (15.11.2013) US
61/904,805 15 November 2013 (15.11.2013) US

(71) **Applicant: FERNO-WASHINGTON, INC. [US/US]; 70 Weil Way, Wilmington, Ohio 45177-9371 (US)**

(72) **Inventors; and**
(71) **Applicants (for US only); MACHILL, Brian [US/US]; c/o**

Ferno-Washington, Inc., 70 Weil Way, Wilmington, Ohio

45177-9371 (US). **POTAK, Robert** [US/US]; c/o Ferno-Washington, Inc., 70 Weil Way, Wilmington, Ohio 45177-9371 (US). **TANGIRALA, Salesh** [US/US]; c/o Ferno-Washington, Inc., 70 Weil Way, Wilmington, Ohio 45177-9371 (US). **VALENTINO, Nicholas** [US/US]; c/o Ferno-Washington, Inc., 70 Weil Way, Wilmington, Ohio 45177-9371 (US).

(74) **Agents:** FOSTER, Eric S. et al.; Dinsmore & Shohl LLP, One South Main Street, Fifth Thrid Center - Suite 1300, Dayton, Ohio 45402 (US).

(84) **Designated States** (*unless otherwise indicated, for every kind of regional protection available*): ARIPO (BW, GH, GM, KE, LR, LS, MW, MZ, NA, RW, SD, SL, ST, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU, LV, MC, MK, MT, NL, NO, PL, PT, RO, RS, SE, SI, SK, SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, KM, ML, MR, NE, SN, TD, TG).

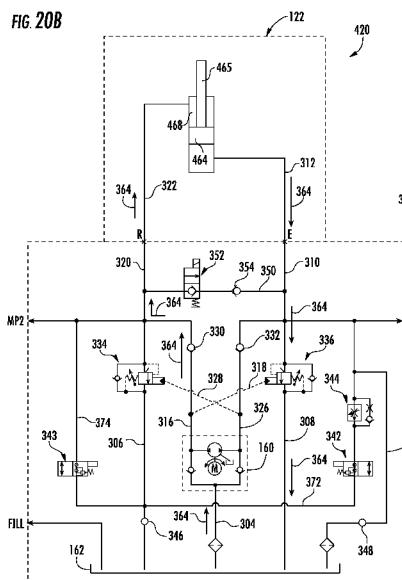
Published:

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

(88) Date of publication of the international search report:

16 July 2015

(54) Title: SELF-ACTUATING COTS



(57) Abstract: According to the embodiments described herein, a self-actuating cot can include a support frame, a pair of legs, and a hydraulic actuator. The support frame can extend from a front end to a back end. The pair of legs can be in movable engagement with the support frame. The hydraulic actuator can be in movable engagement with the pair of legs and the support frame. The hydraulic actuator can extend and retract the pair of legs with respect to the support frame.

WO 2015/073792 A3

INTERNATIONAL SEARCH REPORT

International application No
PCT/US2014/065649

A. CLASSIFICATION OF SUBJECT MATTER
INV. A61G1/056
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)
A61G

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 practicable, search terms used)

EPO-Internal

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/165208 A1 (REED JAIME C [US] ET AL) 2 July 2009 (2009-07-02) paragraphs [0163], [0165]; figures 1,3,6-8,11-17,44-52,58,63	13-20
Y		25
A		1-12, 30-53

A	FR 2 695 553 A1 (RHONALP TECH SOUDURE [FR]) 18 March 1994 (1994-03-18) figures 1-4	1-12

X	WO 2011/088169 A1 (FERNO WASHINGTON [US]; VALENTINO NICHOLAS V [US]; PALASTRO MATTHEW [US]) 21 July 2011 (2011-07-21) page 9, lines 9-27; figures 1-8	21-24, 26-29
Y	page 11, lines 9-12	25

Further documents are listed in the continuation of Box C.

See patent family annex.

* Special categories of cited documents :

- "A" document defining the general state of the art which is not considered to be of particular relevance
- "E" earlier application or patent but published on or after the international filing date
- "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)
- "O" document referring to an oral disclosure, use, exhibition or other means
- "P" document published prior to the international filing date but later than the priority date claimed

"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

"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

"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

"&" document member of the same patent family

Date of the actual completion of the international search

30 April 2015

Date of mailing of the international search report

22/05/2015

Name and mailing address of the ISA/
European Patent Office, P.B. 5818 Patentlaan 2
NL - 2280 HV Rijswijk
Tel. (+31-70) 340-2040,
Fax: (+31-70) 340-3016

Authorized officer

Gkama, Alexandra

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2014/065649

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.:

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: 1-12

Cot comprising hydraulic actuator in sliding engagement with guide member.

Special technical feature (STF, found in claim 1): The cylinder housing is in sliding engagement with a guide member, which is also in rigid engagement with the rod.

Technical effect (TE): The sliding guide member slides with respect to the cylinder housing as the rod extends and retracts.

Technical problem (TP): How to improve the management of the cot's weight and its balance.

2. claims: 13-17

Cot comprising rotatable hinge members.

STF (claim 14): The cot comprises a hinge member, rotatably engaged to the frame and leg.

TE: As the actuator extends or retracts, the location of engagement of the hinge travels along a path.

TP: None.

3. claims: 18-20

Cot comprising hydraulic actuator with hydraulic circuit.

STF: None.

TE: None.

TP: None.

4. claims: 21-29

Cot comprising two actuators and an automatic actuation system.

STF (claim 21): The cot actuation system comprises two actuators and is configured to automatically actuate to a loading position.

TE: The support frame forms an acute angle in relation to a level surface.

TP: How to make the loading of the cot easier.

5. claims: 30-53

Cot comprising amplification system.

STF (claim 30): The cot comprises a carriage coupled to the cylinder, an amplification rail and a transmission assembly coupled to the amplification rail.

TE: The transmission assembly applies forces to the amplification rail to translate the amplification rail away

FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

from the carriage.

TP: How to amplify the effect of the piston on the legs of
the cot.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2014/065649

Patent document cited in search report	Publication date	Patent family member(s)		Publication date
US 2009165208	A1 02-07-2009	CA 2714365	A1 09-07-2009	
		EP 2240146	A1 20-10-2010	
		US 2009165208	A1 02-07-2009	
		WO 2009085332	A1 09-07-2009	
FR 2695553	A1 18-03-1994	NONE		
WO 2011088169	A1 21-07-2011	AU 2011205363	A1 26-07-2012	
		AU 2015200802	A1 12-03-2015	
		CA 2786442	A1 21-07-2011	
		CN 102781392	A 14-11-2012	
		EP 2523642	A1 21-11-2012	
		JP 2013517057	A 16-05-2013	
		KR 20120125495	A 15-11-2012	
		US 2013168987	A1 04-07-2013	
		WO 2011088169	A1 21-07-2011	