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DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT, HN,  
HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP, KR,  
KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD, ME,  
MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI, NO, NZ,  
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Declarations under Rule 4.17:

— of inventorship (Rule 4.17(iv))

Published:

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

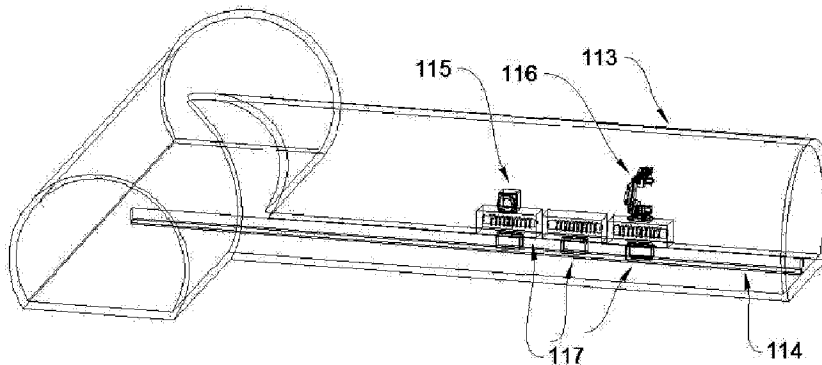
— before the expiration of the time limit for amending the  
claims and to be republished in the event of receipt of  
amendments (Rule 48.2(h))

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

28 June 2012

(54) Title: EXPANDABLE DEVICES, RAIL SYSTEMS, AND MOTORIZED DEVICES

Fig. 9a



(57) Abstract: Provided herein are expandable devices, rail systems, and motorized devices. In one embodiment, an expandable device comprises an expandable sac having a tool housed therein. The expandable device is optionally configured for operation while inside a body cavity. The expandable device optionally comprises at least one rail in the sac, and at least one railed device coupled to the rail for movement there on. Movement of the railed device on the rail is provided by, for example, a motor such as an electromagnetic motor or an inch-worm type motor. Expandable devices can be used, for example, to perform minimally invasive medical procedures requiring access to a body cavity. Expandable devices can also be used, for example, to provide safe and stable transport of instruments to the body cavity.



**A. CLASSIFICATION OF SUBJECT MATTER***A61M 25/04(2006.01)i, A61B 17/02(2006.01)i, A61M 29/00(2006.01)i, A61B 17/94(2006.01)i, A61B 19/00(2006.01)i*

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)

A61M 25/04; A61B 17/02; A61B 1/00; A61B 1/32; A61M 29/02

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

Korean utility models and applications for utility models

Japanese utility models and applications for utility models

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

eKOMPASS(KIPO internal) &amp; Keywords: expandable, rail, magnet, lumen

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X A	US 2009-0076536 A1 (RENTSCHLER et al.) 19 March 2009 See claim 1; paragraphs [0063]-[0069], [0072]-[0074], [0093]-[0103], and [0127]-[0128]; and figs. 1A-1C, 8A, and 9-10.	1,2-4,9-11,51 ,52-59,65-66,67 ,68-72,79-86 5-8,12-34,38-50 ,60-64,73-78,87-99 ,106-114
A	US 6605037 B1 (MOLL et al.) 12 August 2003 See the abstract; claim 1; and figs. 1-5.	1-34,38-99,106-114
A	US 2007-0287889 A1 (MOHR) 13 December 2007 See the abstract; claims 1 and 12; and figs. 3 and 10-17.	1-34,38-99,106-114
A	US 05337732 A (GRUNDFEST et al.) 16 August 1994 See the abstract; claim 1; and figs. 1 and 3.	1-34,38-99,106-114

 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

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"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

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"&amp;" document member of the same patent family


Date of the actual completion of the international search

17 APRIL 2012 (17.04.2012)

Date of mailing of the international search report

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Name and mailing address of the ISA/KR


 Korean Intellectual Property Office  
 Government Complex-Daejeon, 189 Cheongsa-ro,  
 Seo-gu, Daejeon 302-701, Republic of Korea

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Authorized officer

LEE, Cheol Soo

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**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.: 115-117  
because they relate to subject matter not required to be searched by this Authority, namely:  
Claims 115-117 pertain to methods for treatment of human by therapy, and thus relate to a subject matter which this international Searching Authority is not required to search under Article 17(2)(a)(i) of the PCT and Rule 39.1(iv) of the Regulations under the PCT.
2.  Claims Nos.: See the extra sheet  
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:  
The claims refer to a multiple dependent claim that refers to other multiple dependent claims. Therefore, the meaning of the technical feature to which they refer is vague and unclear.
3.  Claims Nos.: See the extra sheet  
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:

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 fee, this Authority did not invite payment of any additional fee.
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.

(Extra sheet)

Continuation of Box No.II

Item 2 ) Claims Nos: 102, 119-128, 132, 134, 136, 138-144, 146-149, 151, 154-155, 157,  
159-160, 162-163, 165, 169, 171, 173-174, 177, 183

Item 3 ) Claims Nos: 35-37, 100-101, 103-105, 118, 129-131, 133, 135, 137, 145, 150, 152-153,  
156, 158, 161, 164, 166-168, 170, 172, 175-176, 178-182

**INTERNATIONAL SEARCH REPORT**

Information on patent family members

International application No.

**PCT/US2011/054829**

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