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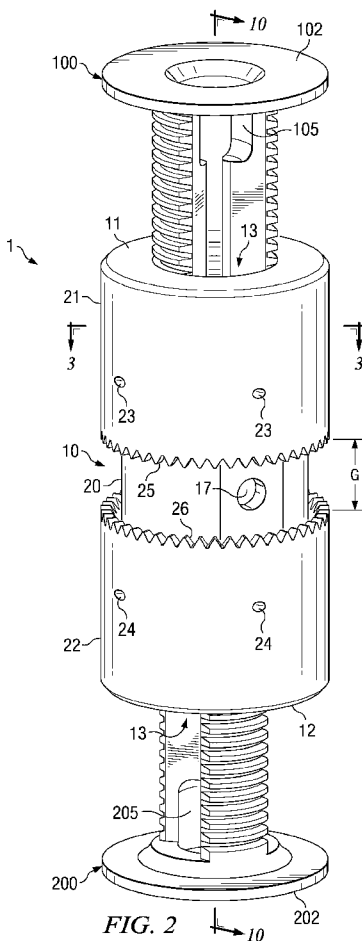
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12/428,988 23 April 2009 (23.04.2009) US
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- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM, AO, AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ,

[Continued on next page]

(54) Title: EXPANDABLE IMPLANT, INSTRUMENT, AND METHOD

(57) Abstract: Embodiments of the invention include expandable, implantable devices and methods. Devices (1) expand linearly to provide secure fixation between or among anatomical structures. The expanded height of some embodiments is greater than twice the unexpanded height of the device. In some embodiments, an implant replaces one or more vertebral bodies of the spine.



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**INTERNATIONAL SEARCH REPORT**

International application No  
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**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. A61F2/44 A61F2/46

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

**C. DOCUMENTS CONSIDERED TO BE RELEVANT**

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5 336 223 A (ROGERS CHARLES L [US]) 9 August 1994 (1994-08-09) figures column 2, line 26 - column 3, line 53 -----	1,5,16
X	DE 37 29 600 A1 (AESCULAP WERKE AG [DE]) 16 March 1989 (1989-03-16) figures column 3, line 23 - line 50 -----	1,5,16

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 document 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

19 August 2010

Date of mailing of the international search report

11/11/2010

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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/US2010/031920

## 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.:

see annex

### 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: 1-5, 16

An expandable medical implant for supporting skeletal structures comprising:  
a base having a first end, a second end, and a cannula extending between the first and second ends along a length of the base;  
a first post having a proximal end that travels within the cannula and a distal end that extends beyond the first end of the base; and  
a second post having a proximal end that travels within the cannula and a distal end that extends beyond the second end of the base;  
wherein the proximal end of the first post is configured to interdigitate with the proximal end of the second post within the cannula along at least a portion of the length of the base,  
wherein the base includes a separator dividing a cross-section of the base such that one or more portions of the first post are divided from one or more portions of the second post.

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## 2. claims: 6-13

An expandable medical implant for supporting skeletal structures comprising:  
a base having a first end, a second end, and a cannula extending between the first and second ends along a length of the base;  
a first post having a proximal end that travels within the cannula and a distal end that extends beyond the first end of the base; and  
a second post having a proximal end that travels within the cannula and a distal end that extends beyond the second end of the base;  
wherein the proximal end of the first post is configured to interdigitate with the proximal end of the second post within the cannula along at least a portion of the length of the base,  
wherein the base includes a first collar at its first end configured to regulate motion of the first post along the length of the base.

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## 3. claims: 14, 15

## FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210

An expandable medical implant for supporting skeletal structures comprising:  
a base having a first end, a second end, and a cannula extending between the first and second ends along a length of the base;  
a first post having a proximal end that travels within the cannula and a distal end that extends beyond the first end of the base; and  
a second post having a proximal end that travels within the cannula and a distal end that extends beyond the second end of the base;  
wherein the proximal end of the first post is configured to interdigitate with the proximal end of the second post within the cannula along at least a portion of the length of the base,  
wherein the first post and the second post each include at least two opposing, interdigitating legs.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/US2010/031920

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 5336223	A	09-08-1994 NONE	
DE 3729600	A1	16-03-1989 DE 8711992 U1	15-10-1987