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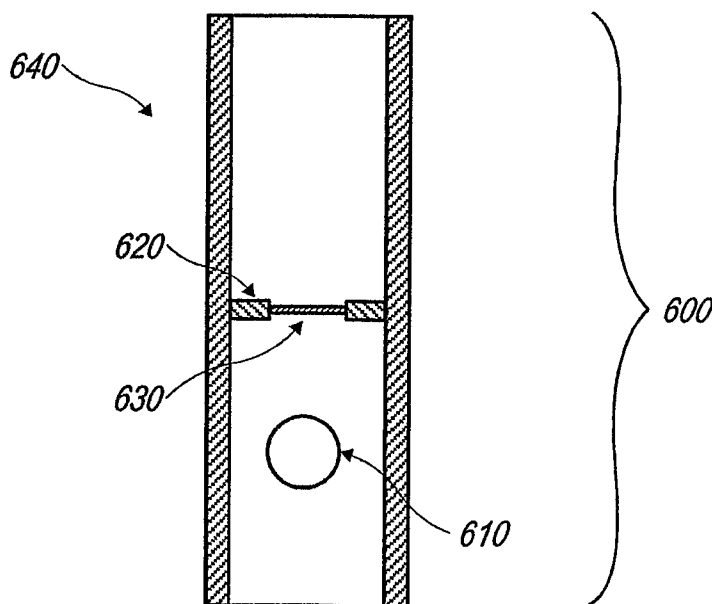
Published:

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10 May 2007

For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

(54) Title: PRESSURE RESPONSIVE CENTRALIZER



(57) Abstract: A centralizer (100) including hollow structural components (110). In at least one embodiment, the hollow structural component is sealed by at least one valve or rupture disk (112). When unacceptable overpressures occur, the valve or rupture disks break to allow influx into the hollow element, thereby relieving pressure and avoiding damage that might otherwise occur. In other embodiments, the hollow structural component collapses to expand available volume.

INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2006/001506

A. CLASSIFICATION OF SUBJECT MATTER
INV. E21B40/00

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)

E21B

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)

EP0-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 6 293 346 B1 (PATEL DINESH R) 25 September 2001 (2001-09-25) column 1, lines 9-12,22,23,63-67; figures 2,3A,4,5 column 2, lines 1,2,51-55 column 3, lines 35,36,40,41,43-47 column 4, lines 12,13,15-17,25,26,29-31,41-45,51-54,58,59 -----	1-6,8, 10,11
A	US 6 736 012 B1 (BEALL SCOTT KENNEDY ET AL) 18 May 2004 (2004-05-18) the whole document -----	1-11
A	US 2 253 675 A (ARNOLD ROUSSEAU) 26 August 1941 (1941-08-26) the whole document -----	1-11

☐ 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

11 July 2006

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20.02.2007

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2006/001506

Box 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 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 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.:

1-11

Remark on Protest

- ☐ The additional search fees were accompanied by the applicant's protest.
- ☐ 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: 1-11

A downhole pressure adjusting system comprising a centralizing structure and at least one closed hollow structural component wherein the hollow structural component is responsive to overpressure.
Technical problem to be solved: how to minimise the effect of overpressure downhole.

2. claims: 12-18

A production system comprising a casing and a centralizer which includes at least one hollow structural component.
Technical problem to be solved: how to provide a lighter centralizer.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2006/001506

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 6293346	B1	25-09-2001	NONE
US 6736012	B1	18-05-2004	BR 0402389 A 22-03-2005 GB 2401165 A 03-11-2004 NO 20041554 A 08-10-2004
US 2253675	A	26-08-1941	NONE