



- (51) International Patent Classification:  
*E21B 33/08* (2006.01)    *E21B 33/06* (2006.01)
- (21) International Application Number:  
PCT/EP2013/064172
- (22) International Filing Date:  
4 July 2013 (04.07.2013)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:  
1212091.1    6 July 2012 (06.07.2012)    GB  
1214898.7    21 August 2012 (21.08.2012)    GB
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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, 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, IS, JP, KE, KG, 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, OM, PA, PE, PG, PH, PL, PT, QA, RO, RS, RU, RW, 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.
- (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, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, RU, TJ, TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,

[Continued on next page]

(54) Title: DYNAMIC ANNULAR SEALING APPARATUS

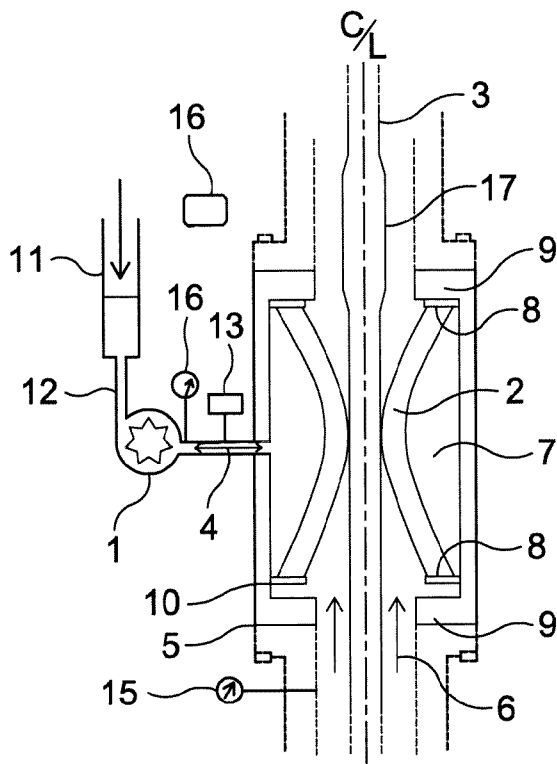


FIG. 1

(57) Abstract: The invention relates to a dynamic annular sealing apparatus comprising a resilient sleeve deformable between a closed sealing configuration and an open non-sealing configuration and a pump controllable to effect such deformation by alteration of pressure exerted on the sleeve. The apparatus is particularly suited to use in wellbore applications.

WO 2014/006149 A3



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).

**(88) Date of publication of the international search report:**  
20 November 2014

**(15) Information about Correction:**

**Previous Correction:**  
see Notice of 6 March 2014

**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))*

INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2013/064172

A. CLASSIFICATION OF SUBJECT MATTER  
INV. E21B33/08 E21B33/06  
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)  
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 practicable, 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 Y A	US 2012/138366 A1 (BAILEY THOMAS F [US] ET AL) 7 June 2012 (2012-06-07) paragraphs [0061], [0065], [0066]; figures 1,3a	1-18,24, 37-39 23,25, 26, 30-36, 46,47 27-29, 40-45
X A	----- US 2005/241833 A1 (BAILEY THOMAS F [US] ET AL) 3 November 2005 (2005-11-03) paragraphs [0027], [0028], [0031], [0032]; figures 1-3 ----- -/--	1-18,24, 37-39 27-29, 40-45

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 application or patent 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>"&amp;" document member of the same patent family</p>
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Date of the actual completion of the international search <b>24 September 2014</b>	Date of mailing of the international search report <b>08/10/2014</b>
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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 <b>Bellingacci, F</b>
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## INTERNATIONAL SEARCH REPORT

International application No  
PCT/EP2013/064172

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 627 986 A1 (SUNSTONE CORP [US]) 22 February 2006 (2006-02-22)	1-19,24, 37-39
Y	paragraphs [0003], [0018], [0028];	20-22
A	figures 16-18	27-29, 40-45
Y	----- US 2010/140516 A1 (BUTUC STEFAN [US]) 10 June 2010 (2010-06-10) paragraph [0033]	20-22
Y	----- US 2008/060816 A1 (HOWLETT PAUL D [GB] HOWLETT PAUL DAVID [GB]) 13 March 2008 (2008-03-13)	23
A	paragraphs [0049], [0050], [0060]; figure 1	40-45
Y	----- US 1 942 366 A (CECIL SEAMARK LEWIS MERVYN) 2 January 1934 (1934-01-02)	25,26, 30-36, 46,47
A	page 2, lines 123-137; figure 1a	27,28
X	----- US 3 621 912 A (WODDY LEMUEL D JR ET AL) 23 November 1971 (1971-11-23) figure 2	1-18,24, 37-39
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/EP2013/064172

## 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.: 48-50  
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:  
see FURTHER INFORMATION sheet PCT/ISA/210
  
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: 1-18, 24, 37-39

Sealing apparatus comprising a deformable sleeve

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2. claims: 19-23, 25-36, 40-47

Sealing apparatus comprising a deformable sleeve, the sleeve having specific constructive characteristics

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**FURTHER INFORMATION CONTINUED FROM PCT/ISA/ 210**

Continuation of Box II.2

Claims Nos.: 48-50

Claims 48-50 do not define any feature

The applicant's attention is drawn to the fact that claims relating to inventions in respect of which no international search report has been established need not be the subject of an international preliminary examination (Rule 66.1(e) PCT). The applicant is advised that the EPO policy when acting as an International Preliminary Examining Authority is normally not to carry out a preliminary examination on matter which has not been searched. This is the case irrespective of whether or not the claims are amended following receipt of the search report or during any Chapter II procedure. If the application proceeds into the regional phase before the EPO, the applicant is reminded that a search may be carried out during examination before the EPO (see EPO Guidelines C-IV, 7.2), should the problems which led to the Article 17(2) declaration be overcome.

# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No  
PCT/EP2013/064172

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