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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, 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, OM, 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.

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(54) Title: WAVE-INDUCING DEVICE, CASING SYSTEM AND METHOD FOR CEMENTING A CASING IN A BOREHOLE

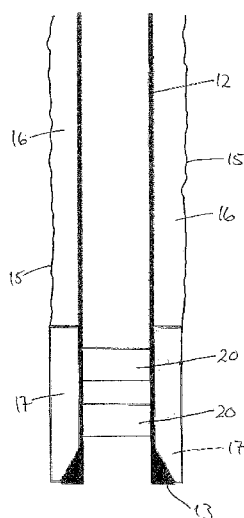


Fig. 2

(57) Abstract: There is described a wave-inducing device, a casing system and a method for cementing a casing in a borehole, the casing system comprising a casing that is provided with at least one wave-inducing device for providing wave motions or vibrations in cement that is between the casing and the borehole. The at least one wave-inducing device is designed to be driven by cement and/or a fluid flowing through the casing.



**INTERNATIONAL SEARCH REPORT**

International application No  
PCT/IB2012/051273

**A. CLASSIFICATION OF SUBJECT MATTER**  
INV. E21B28/00 E21B33/14  
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	US 2004/159464 A1 (VON GYNZ-REKOWSKI GUNTHER H H [US]) 19 August 2004 (2004-08-19) abstract figures 1a,b figure 6a paragraphs [0008], [0010], [0012] paragraph [0015]	1,4,5,8, 11,12, 16,17,21
X	US 5 152 342 A (RANKIN R EDWARD [US] ET AL) 6 October 1992 (1992-10-06)  abstract figures 3-5 column 1, line 40 - line 55  ----- -/--	1-3, 8-10, 16-19, 21-23

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

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## INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2012/051273

C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 3 335 801 A (WILSEY LAWRENCE E) 15 August 1967 (1967-08-15) abstract figures 1,3 column 1, lines 56-60 column 2, lines 7-23 claims 1,3 -----	1,8,16, 17,21
X	US 4 058 163 A (YANDELL JAMES L) 15 November 1977 (1977-11-15) abstract figures 2,5,8 column 1, paragraphs 1,2,3 column 6, paragraph 2 -----	1-3, 8-10, 16-19, 21-23
A	EP 0 747 571 A2 (HALLIBURTON CO [US] HALLIBURTON ENERGY SERV INC [US]) 11 December 1996 (1996-12-11) abstract figures 2-4 -----	4,5,11, 12
A	EP 0 131 451 A2 (INTECH OIL TOOLS LTD [CA]) 16 January 1985 (1985-01-16) abstract figures 1,5,8 -----	4,5,11, 12

# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/IB2012/051273

## 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.:  
  
1-5, 8-12, 16-19, 21-23
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: 1-3, 8-10, 16-19, 21-23

Asymmetrical wave inducing device

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2. claims: 4, 5, 11, 12

Wave inducing device with blades

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3. claims: 6, 7, 13-15, 20

Wave inducing device with additional beater

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2012/051273

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2004159464	A1	19-08-2004	US 2004159464 A1
			US 2005211472 A1
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