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- (71) **Applicant (for all designated States except US):** **M-I DRILLING FLUIDS UK LIMITED** [GB/GB]; Ashleigh House, 1 Abbotswell Road, West Tullos, Aberdeen, Aberdeenshire AB12 3AD (GB).
- (72) **Inventor; and**
- (75) **Inventor/Applicant (for US only):** **CHAPMAN, John W.** [GB/GB]; 7 Burnside Gardens, Stonehaven, Aberdeenshire AB39 2FA (GB).
- (74) **Agent:** **MURGITROYD & COMPANY;** Scotland House, 165-169 Scotland Street, Glasgow, Strathclyde G5 8PL (GB).
- (81) **Designated States (unless otherwise indicated, for every kind of national protection available):** AE, AG, AL, AM,

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- 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))

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**WO 2012/176000 A3**

(54) **Title:** WELLBORE FLUID

(57) **Abstract:** The present invention provides a wellbore fluid, such as a drilling, completion or workover fluid, said wellbore fluid comprising a glucomannan additive. Further provided is a method of forming a gel plug from the wellbore fluid, a method of modifying the properties of a wellbore fluid, a method of drilling a subterranean hole with such a fluid and the use of glucomannan in wellbore fluids.

INTERNATIONAL SEARCH REPORT

International application No  
PCT/GB2012/051477

A. CLASSIFICATION OF SUBJECT MATTER  
INV. C09K8/035  
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)  
C09K

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	DATABASE WPI Week 201053 Thomson Scientific, London, GB; AN 2010-H76123 XP002683876, & CN 101 735 791 A (UNIV TIANJIN) 16 June 2010 (2010-06-16) abstract citations based on English machine translation; claim 1 the whole document	1-11, 13-17, 19-23
X	WO 2009/097286 A1 (BJ SERVICES CO [US]; CARMAN PAUL S [US]; DAWSON JEFFREY C [US]) 6 August 2009 (2009-08-06) claims 21, 22 the whole document	1-12, 19-23
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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  12 December 2012	Date of mailing of the international search report  19/12/2012
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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  Straub, Thomas
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## INTERNATIONAL SEARCH REPORT

International application No

PCT/GB2012/051477

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 2 264 119 A1 (CLEARWATER INT LLC [US]) 22 December 2010 (2010-12-22) paragraph [0064]; claim 1 the whole document	1-11, 19-23
X	----- US 5 152 906 A (AFTEN CARL W [US] ET AL) 6 October 1992 (1992-10-06) column 6, lines 37-43; claim 1 the whole document	1-11, 19-23
A	----- US 5 795 764 A (CHRISTGAU STEPHAN [DK] ET AL) 18 August 1998 (1998-08-18) de-acetylation; column 6, lines 12-24	1-17, 19-23
A	----- PARADOSSI G ET AL: "Xanthan and Glucomannan Mixtures: Synergistic Interactions and Gelation", BIOMACROMOLECULES, AMERICAN CHEMICAL SOCIETY; US, vol. 3, no. 3, 1 January 2002 (2002-01-01) , pages 498-504, XP002568691, ISSN: 1525-7797, DOI: 10.1021/BM010163V [retrieved on 2002-03-12] Synergistic interactions and gelation of xanthan/glucomannan mixtures the whole document	1-17, 19-23
X	----- WO 93/03047 A1 (FMC CORP [US]) 18 February 1993 (1993-02-18) page 11, line 29 - page 22, line 5 the whole document	12
X	----- US 2005/000734 A1 (GETZLAF DONALD A [CA] ET AL) 6 January 2005 (2005-01-06) claims 1,18 the whole document	12
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# INTERNATIONAL SEARCH REPORT

International application No.  
PCT/GB2012/051477

## 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.:  
  
1-17, 19-23
  
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: 1-11, 19-23

A wellbore fluid comprising water, a glucomannan additive and at least one other component selected from the group comprising a rheology modifier, fluid loss control agent, inorganic or organic salt, dispersant, shale stabilizer or inhibitor and weighting agent.

Use of glucomannan as a wellbore fluid additive.

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2. claim: 12

A method of drilling a subterranean hole with a wellbore fluid comprising at least the steps of: - forming a wellbore fluid according to any of claims 1 to 11 by mixing water, a glucomannan additive and at least one other component selected from the group comprising a rheology modifier, fluid loss control agent, inorganic or organic salt, dispersant, shale stabilizer or inhibitor and weighting agent; and - drilling a subterranean hole using said wellbore fluid.

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3. claims: 13-17

A method of forming a gel plug suitable for a subterranean hole comprising at least the steps of: - providing a wellbore fluid according to any one of claims 1 to 11; and - deacetylating the glucomannan additive in the wellbore fluid to form a gel plug.

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4. claim: 18

A method of modifying the properties of a wellbore fluid, comprising at least the steps of: - providing a fluid comprising water and at least one other component selected from the group comprising a rheology modifier, fluid loss control agent, inorganic or organic salt, dispersant, shale stabilizer or inhibitor and weighting agent; and - mixing a glucomannan additive with the fluid.

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# INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2012/051477

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
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