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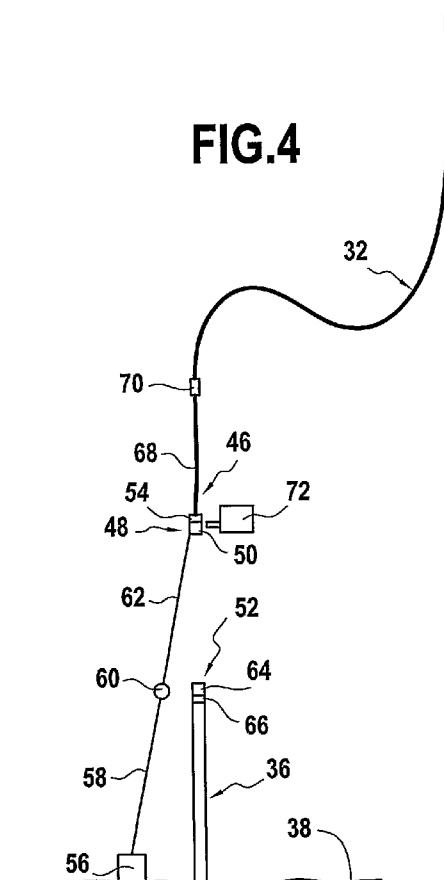
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[Continued on next page]

(54) Title: CONNECTING COMPLIANT TUBULAR MEMBERS AT SUBSEA LOCATIONS

(57) Abstract: A technique facilitates formation of connections between compliant tubular members and subsea facilities (36). A compliant tubular (32) member is deployed to a subsea location in a manner that arranges the compliant tubular member in a curvilinear shape. The distal end (48) of the compliant tubular member is drawn down into proximity with the subsea facility and then moved horizontally into alignment with the subsea facility. Subsequently, the distal end is lowered into engagement (Fig.6) with the subsea facility without being detrimentally affected by motion of an upper end of the compliant tubular member.





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- *with international search report (Art. 21(3))*
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INTERNATIONAL SEARCH REPORT

International application No

PCT/IB2009/050266

A. CLASSIFICATION OF SUBJECT MATTER

INV. E21B41/00 F16L1/14

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 F16L

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 Y A	US 4 386 659 A (SHOTBOLT KEITH [GB]) 7 June 1983 (1983-06-07) columns 3-4; figure 1	1,2,4,6, 8-10 7 3,5, 11-14
Y	US 4 588 326 A (LANGNER CARL G [US]) 13 May 1986 (1986-05-13) column 5, lines 40-50; figures 4-6	7
A	US 3 265 130 A (WATKINS BRUCE J) 9 August 1966 (1966-08-09) figure 1	1-14



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

14 May 2009

Date of mailing of the international search report

07/08/2009

Name and mailing address of the ISA/

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/IB2009/050266

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 allsearchable 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 reportcovers 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: 1-14

A method for connecting a compliant tubular member underwater, comprising:
preparing a compliant tubular member with a distal end having a positive buoyancy;
drawing the distal end downward into proximity with a subsea facility at the seabed;
deploying an additional length of the compliant tubular member until the compliant tubular member is arranged in a curvilinear shape;
moving the distal end horizontally into vertical alignment with the subsea facility;
delivering a conveyance member through the compliant tubular member and into engagement with the subsea facility; and
reducing the deployed length of the conveyance member from a surface location to move the distal end of the compliant tubular member into engagement with the subsea facility.

2. claims: 15-20

A method, comprising:
arranging a compliant tubular member to have a curvilinear shape when deployed to a subsea location;
using buoyancy to maintain a lower section of the compliant tubular member generally vertical;
moving a distal end of the compliant tubular member into generally vertical alignment with a subsea facility;
delivering a conveyance member through the compliant tubular member and into cooperation with the subsea facility; and
reducing the deployed length of the conveyance member to move the distal end of the compliant tubular member into engagement with the subsea facility.

3. claims: 21-25

A method, comprising:
deploying a compliant tubular member from a spool located on a surface vessel;
placing a distal end of the compliant tubular member proximate a subsea facility;
delivering a conveyance member through the compliant tubular member; and
lowering the distal end of the compliant tubular member into engagement with the subsea facility.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/IB2009/050266

Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 4386659	A	07-06-1983	CA 1155762 A1 EP 0034482 A1 GB 2069647 A IE 50716 B1 NO 810484 A	25-10-1983 26-08-1981 26-08-1981 25-06-1986 17-08-1981
US 4588326	A	13-05-1986	NONE	
US 3265130	A	09-08-1966	GB 981765 A	27-01-1965