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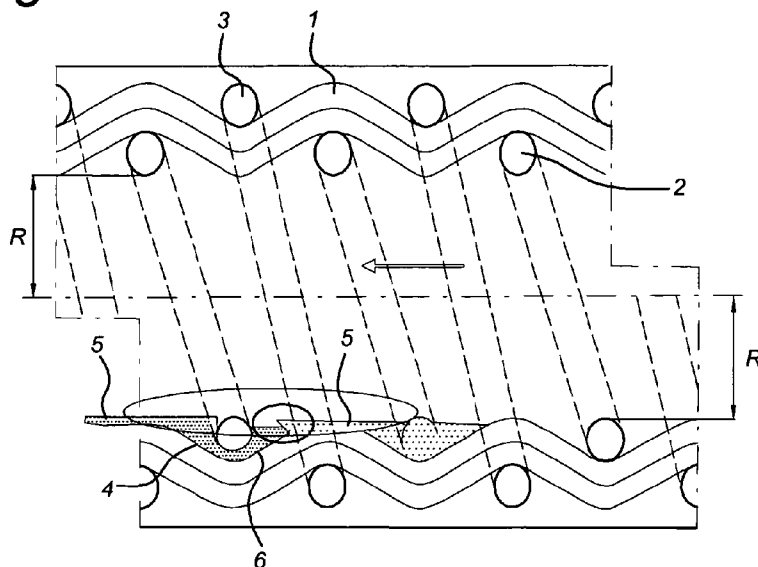
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[Continued on next page]

(54) Title: IMPROVED COMPOSITE HOSE AND METHOD FOR FABRICATING SUCH A HOSE

Fig 1



(57) Abstract: This invention relates to a composite hose (12) for transfer of cryogenic fluids, comprising two end flanges, a helical wound inner wire (2) several layers of protective fabric layers (9), at least one gas-tight sealing layer sandwiched between one or more protective layers and an outer helical wound wire which is placed on top of the protective layers between the pitch of the inner wire, characterized in that the inner wire is connected to a flexible inner liner that follow any axial and/or radial displacement of the inner wire and that covers the inner corrugations of the composite hose so to create a smooth inner bore of the composite hose.



— *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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INTERNATIONAL SEARCH REPORT

International application No
PCT/EP2010/053477

A. CLASSIFICATION OF SUBJECT MATTER
INV. F16L11/08 F16L59/14
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)
F16L B29C

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 5 778 940 A (TUCKER PETER N [US] ET AL) 14 July 1998 (1998-07-14) column 2, line 29 - line 56; figures 2,3 -----	1-3,7
X	GB 2 370 336 A (MEIJIFLEX CO LTD [JP]) 26 June 2002 (2002-06-26) page 8, paragraph 2 - paragraph 3; figures 3,4,8-11 -----	1-3,8
X	GB 366 370 A (ERNEST SCHULTHESS) 4 February 1932 (1932-02-04) figures 1,2 -----	1,8
A	JP 2005 083422 A (KOGEN KIZAI KK) 31 March 2005 (2005-03-31) * abstract; figures 1-3 ----- -/--	4,5

☒ 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

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"&" document member of the same patent family

Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
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X	FR 2 177 518 A1 (NORD PAS CALAIS HOUILLERES [FR]) 9 November 1973 (1973-11-09) page 6, line 8 - page 7, line 8; figures 2,3 -----	6
X	WO 2008/017868 A2 (BHP BILLITON PERTROLEUM PTY LT [AU]; WITZ JOEL AARON [GB] BHP BILLITON) 14 February 2008 (2008-02-14) page 21, line 17 - page 22, line 22; figures 1-3 -----	14,15, 17-19, 22,23,25
X	US 2002/089177 A1 (BONN JOHN W [US]) 11 July 2002 (2002-07-11) paragraphs [0041], [0042]; figures 4-6 -----	14,15, 17-19,22
X	WO 2008/071637 A2 (SINGLE BUOY MOORINGS [CH]; MENARDO PHILIPPE ALBERT CHRIST [FR]; QUEAU) 19 June 2008 (2008-06-19) figures 4a-10 -----	22
A		20,23-25

INTERNATIONAL SEARCH REPORT

International application No.
PCT/EP2010/053477

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.:
6, 14-20, 22-25
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: 1-5, 7-9

Hose with smooth inner bore

2. claim: 6

Mandrel for manufacturing composite hose

3. claims: 10-13, 21

Hose with optical fiber

4. claims: 14-20, 22-25

Hose with pressure relief system

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

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