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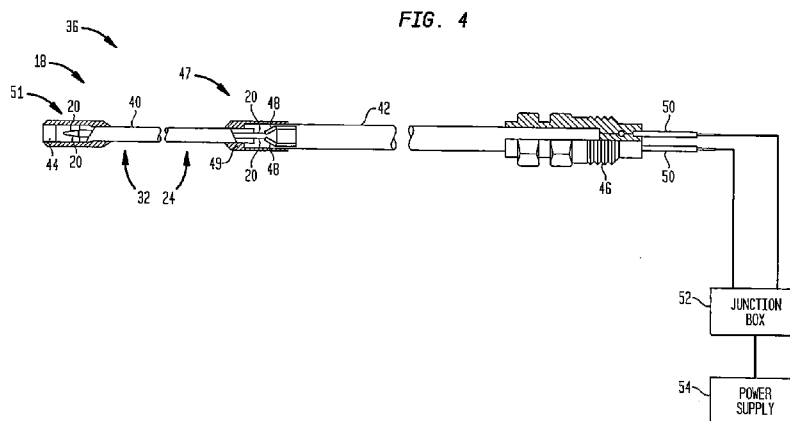
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Published:

— with international search report (Art. 21(3))

[Continued on next page]

(54) Title: MINERAL INSULATED CABLE HAVING REDUCED SHEATH TEMPERATURE



(57) Abstract: A mineral insulated heating cable for a heat tracing system. The heating cable includes a sheath having at least a first, and optionally a second layer, wherein the thermal conductivity of the second layer is greater than a thermal conductivity of the first layer. In addition, the first and second layers are in intimate thermal contact. The heating cable also includes a least one heating conductor for generating heat and a dielectric layer located within the sheath for electrically insulating the heating conductor, wherein the sheath, heating conductor and dielectric layer form a heating section. In addition, the heating cable includes a conduit for receiving the heating section. Further, the heating cable includes a cold lead section and a hot-cold joint for connecting the heating and cold lead sections. In addition, a high emissivity coating may be formed on the first layer.





— *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))*

(88) Date of publication of the international search report:
5 June 2014

INTERNATIONAL SEARCH REPORT

International application No
PCT/GB2013/051774

A. CLASSIFICATION OF SUBJECT MATTER
 INV. H05B3/08 H05B3/50 H05B3/56
 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)
 H05B

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	EP 0 419 351 A1 (VULCANIC [FR]) 27 March 1991 (1991-03-27) the whole document -----	1-11, 27-32
X	US 2007/237497 A1 (LEHMANN FRANK G [DE]) LEHMANN FRANK GUENTER [DE]) 11 October 2007 (2007-10-11) the whole document -----	1-11, 27-32
A	US 3 214 571 A (INDOE WILLIAM J) 26 October 1965 (1965-10-26) the whole document -----	1-11, 27-32
A	US 4 704 514 A (VAN EGMOND COR F [US] ET AL) 3 November 1987 (1987-11-03) the whole document -----	1-11, 27-32
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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

28 October 2013

Date of mailing of the international search report

14/04/2014

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INTERNATIONAL SEARCH REPORT

International application No
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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.
A	CN 201 550 304 U (TEC ELECTRIC CO LTD) 11 August 2010 (2010-08-11) the whole document -----	1-11, 27-32

INTERNATIONAL SEARCH REPORT

International application No.
PCT/GB2013/051774

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.:

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.:
1-6, 27-31(completely); 7-11, 32(partially)

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: 1-6, 27-31(completely); 7-11, 32(partially)

Mineral insulated heating cable enclosed by a protective conduit.

2. claims: 12-21, 33, 34(completely); 7-11, 26, 32(partially)

Mineral insulated heating cable with multilayered sheath

3. claims: 22-25(completely); 26(partially)

Mineral insulated cable with cooling fins around the outer periphery of the heating section

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No

PCT/GB2013/051774

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