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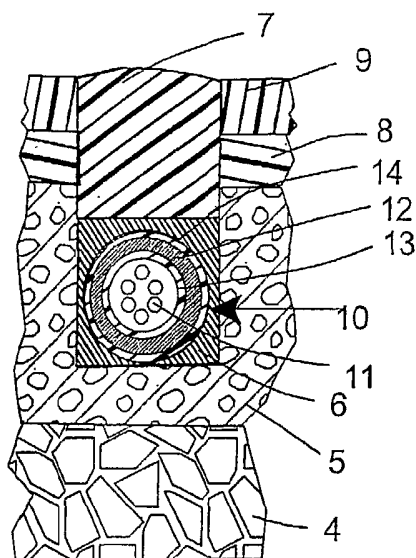
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(54) Title: EXTERIOR INSTALLATION OF ARMORED FIBER OPTIC CABLE



(57) Abstract: An armored fiber optic cable (10) can be installed in channel (3), excavated in a roadway or other paved surface by a laying unit (1) including a cutting wheel (2). The armored fiber optic cable includes optical fibers (11) located within a cylindrical thermoplastic inner jacket (13). An armor layer or jacket (12) surrounds this inner jacket, and an outer barrier jacket (14) extends around this armor jacket. This armored fiber optic cable (10) need not be disposed in a tube or pipe, and mid-span access to the optical fibers (11) can be readily obtained by removing a section of the armored jacket (12). The armor jacket (12) can be joined to the inner jacket (13), fabricated from a thermoplastic material, to limit longitudinal contraction due to thermal contraction and bucking of the optical fibers (11).

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INTERNATIONAL SEARCH REPORT

International appli.

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<p>A. CLASSIFICATION OF SUBJECT MATTER                  IPC(7) : E02F 5/10; G02B 6/44                  US CL : 405/180; 385/107                  According to International Patent Classification (IPC) or to both national classification and IPC</p>																						
<p>B. FIELDS SEARCHED                  Minimum documentation searched (classification system followed by classification symbols)                  U.S. : 405/159, 160, 161, 162, 163, 164, 165, 174, 175, 176, 177, 178, 179, 180, 181, 182, 183; 385/107, 108; 174/102D, 108, 109</p>																						
<p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched                  NONE</p>																						
<p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)                  Electronic EAST</p>																						
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category *</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>Y</td> <td>US 4,284,842 A (ARROYO et al.) 18 August 1981 (18.08.1981), Figs. 1 and 2; col. 4.</td> <td>6, 13, 20</td> </tr> <tr> <td>X</td> <td>US 4,941,729 A (HARDIN et al.) 17 July 1990 (17.07.1990), Figs. 5 and 6; col. 7.</td> <td>31-36</td> </tr> <tr> <td>Y</td> <td>US 5,934,834 A (PERROT) 10 August 1999 (10.08.1999), Figs. 1, 4, and 5.</td> <td>1-30</td> </tr> <tr> <td>Y</td> <td>US 6304699 B2 (FIELD et al.) 16 October 2001 (16.10.2001), Figs. 1 and 2.</td> <td>1-30</td> </tr> <tr> <td>A</td> <td>US 6,459,837 B1 (FITZ et al.) 01 October 2002 (01.10.2002), Figs. 1 and 2; col. 8, lines 10-18.</td> <td>1-36</td> </tr> </tbody> </table>			Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	Y	US 4,284,842 A (ARROYO et al.) 18 August 1981 (18.08.1981), Figs. 1 and 2; col. 4.	6, 13, 20	X	US 4,941,729 A (HARDIN et al.) 17 July 1990 (17.07.1990), Figs. 5 and 6; col. 7.	31-36	Y	US 5,934,834 A (PERROT) 10 August 1999 (10.08.1999), Figs. 1, 4, and 5.	1-30	Y	US 6304699 B2 (FIELD et al.) 16 October 2001 (16.10.2001), Figs. 1 and 2.	1-30	A	US 6,459,837 B1 (FITZ et al.) 01 October 2002 (01.10.2002), Figs. 1 and 2; col. 8, lines 10-18.	1-36		
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<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A"</td> <td>document defining the general state of the art which is not considered to be of particular relevance</td> <td>"T"</td> <td>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</td> </tr> <tr> <td>"E"</td> <td>earlier application or patent published on or after the international filing date</td> <td>"X"</td> <td>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</td> </tr> <tr> <td>"L"</td> <td>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)</td> <td>"Y"</td> <td>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</td> </tr> <tr> <td>"O"</td> <td>document referring to an oral disclosure, use, exhibition or other means</td> <td>"&amp;"</td> <td>document member of the same patent family</td> </tr> <tr> <td>"P"</td> <td>document published prior to the international filing date but later than the priority date claimed</td> <td></td> <td></td> </tr> </table>			"A"	document defining the general state of the art which is not considered to be of particular relevance	"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	"E"	earlier application or patent published on or after the international filing date	"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	"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)	"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	"O"	document referring to an oral disclosure, use, exhibition or other means	"&"	document member of the same patent family	"P"	document published prior to the international filing date but later than the priority date claimed		
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<p>Date of the actual completion of the international search                  17 January 2005 (17.01.2005)</p>		<p>Date of mailing of the international search report  <b>18 FEB 2005</b></p>																				
<p>Name and mailing address of the ISA/US                  Mail Stop PCT, Attn: ISA/US                  Commissioner for Patents                  P.O. Box 1450                  Alexandria, Virginia 22313-1450                  Facsimile No. (703)305-3230</p>		<p>Authorized officer                  M. Safavi <i>[Signature]</i>                  Telephone No. (703) 308-2168</p>																				