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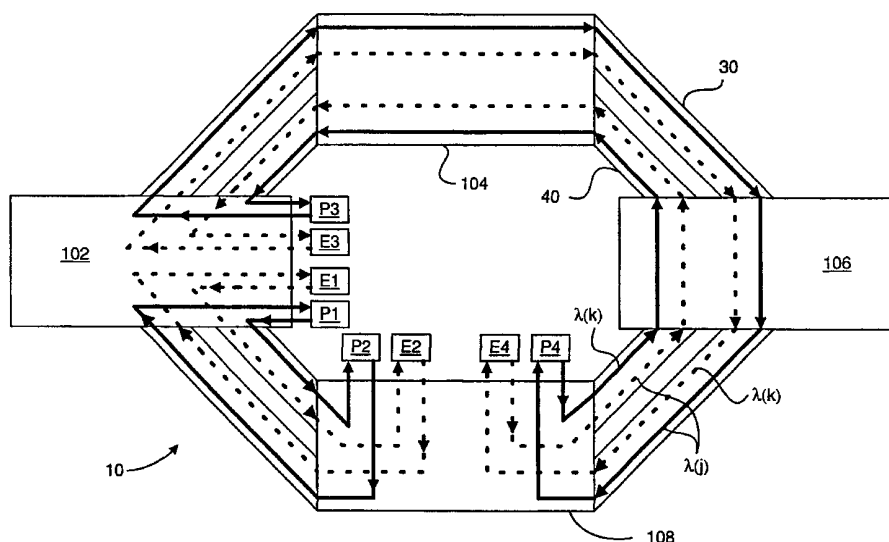
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(54) Title: DEVICES AND METHODS FOR CONTROLLING PROTECTION SWITCHING IN AN OPTICAL CHANNEL SHARED PROTECTION RING



(57) Abstract: An optical channel shared protection ring (20) including multiple ring nodes (102, 104, 106, 108), the nodes including optical switch or crossbar capability for performing ring switching for end-node protection switching for wavelengths that may be dropped and added and a non-intrusive optical channel monitor (22, 62) at least on each working channel both on the add and drop side of the node, such that a monitor is always present at both a head-end location where traffic is introduced to the ring and at a tail end location where traffic leaves the ring, so as to be able to trigger end-node protection switching performed by the head-end and tail-end nodes based on the condition of absence of adequate signal at both the head-end and the tail-end location, thus avoiding unnecessary protection switching.



For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US01/07747

A. CLASSIFICATION OF SUBJECT MATTER

IPC(7) : H04B 10/08, 10/20

US CL : 359/110, 119

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)

U.S. : 359/110, 119

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)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y --- X	WO 97/01907 (MERLI et al.) 16 January 1997 (16.01.1997), entire document.	1-10, 12-14 ----- 11
Y --- X	WO 97/01897 (ANDREOZZI et al.) 16 January 1997 (16.01.1997), entire document.	1-10, 12-14 ----- 11
Y --- X	WO 96/19884 (ALMSTROM) 27 June 1996 (27.06.1996), entire document.	1-10, 12-14 ----- 11
Y, E	US 6,266,168 B1 (DENKIN et al.) 24 July 2001 (24.07.2001), entire document.	1-14
Y, P	US 6,160,648 A (OBERG et al.) 12 December 2000 (12.12.2000), entire document.	1-14
Y, P	US 6,141,125 A (BLAIR et al.) 31 October 2000 (31.10.2000), entire document.	1-14



Further documents are listed in the continuation of Box C.



See patent family annex.

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"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
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"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	"&" document member of the same patent family

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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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Y	US 5,815,489 A (TAKATORI et al.) 29 September 1998 (29.09.1998), entire document.	1-14
Y	US 5,625,478 A (DOERR et al.) 29 April 1997 (29.04.1997), entire document.	1-14
Y	US 5,532,862 A (TADA et al.) 02 July 1996 (02.07.1996), entire document.	1-14
A	US 6,023,359 A (ASAHI) 08 February 2000 (08.02.2000), entire document.	1-14
A	US 5,933,258 A (FLANAGAN et al.) 03 August 1999 (03.08.1999), entire document.	1-14