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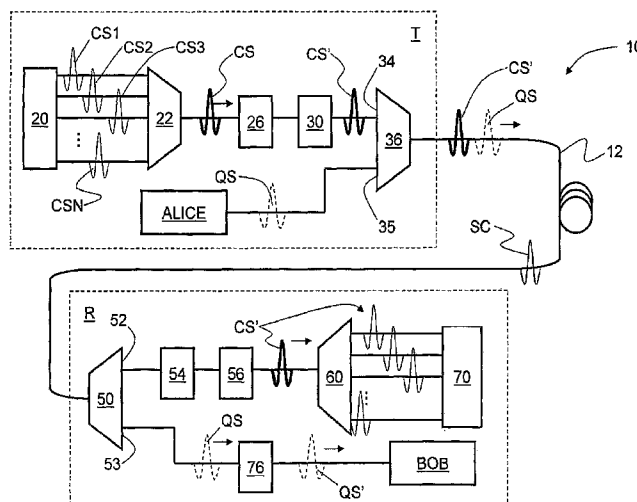
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(54) Title: SYSTEMS AND METHODS FOR TRANSMITTING QUANTUM AND CLASSICAL SIGNALS OVER AN OPTICAL NETWORK



(57) Abstract: Systems and methods for transmitting quantum and classical signals over an optical network are disclosed, wherein the quantum signal wavelength either falls within the classical signal wavelength band, or is very close to one of the classical signal wavelengths. The system includes a deep-notch optical filter (30) with a blocking bandwidth that includes the quantum signal wavelength but not any of the classical signal wavelengths. The deep-notch optical filtering is applied to the classical signals (CS) prior to their being multiplexed with the quantum signals to prevent noise generated by the classical signals from adversely affecting transmission of quantum signals in the transmission optical fiber (12). Narrow-band filtering is also applied to the quantum signals prior to their detection in order to substantially exclude spurious non-quantum-signal wavelengths that arise from non-linear effects in the transmission optical fiber.

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US07/00383

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - H04K 01/00 (2007.01)

USPC - 380/256

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)

IPC(8) - H04K 01/00; H04L 09/00 (2007.01)

USPC - 380/256, 283

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)

PatBase

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 2005/0078827 A1 (TAJIMA) 14 April 2005 (14.04.2005) entire document	1-8, 10, 14, 15 ----- 9, 11-13
Y	US 5,861,981 A (JABR) 19 January 1999 (19.01.1999) entire document	9, 11-13
A	US 2005/0100351 A1 (YUAN et al) 12 May 2005 (12.05.2005) entire document	1-15
A	US 2004/0161109 A1 (TRIFONOV) 19 August 2004 (19.08.2004) entire document	1-15

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