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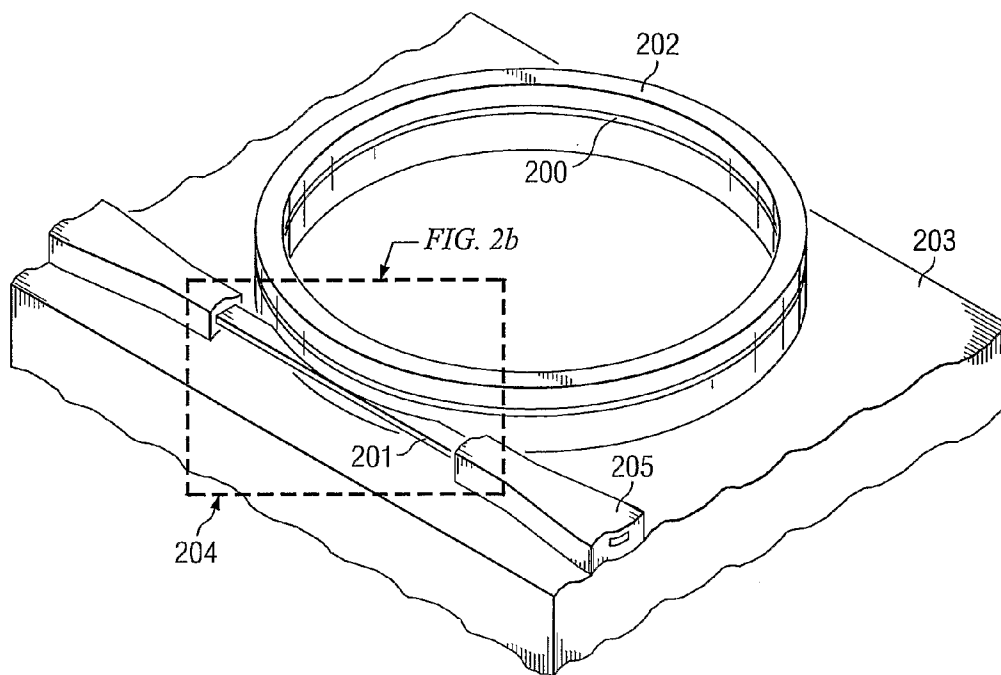
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(54) Title: VERTICALLY COUPLING OF RESONANT CAVITIES TO BUS WAVEGUIDES



(57) Abstract: Embodiments of the invention involve a monolithic vertical configuration for coupling a ring resonator (200) and a bus waveguides (201). The monolithic vertical coupling arrangement, with the epitaxial grown coupling between the waveguide and the resonator, provides control of the coupling coefficient. The vertical coupling arrangement allows for different material compositions in the waveguide and resonator structures, e.g. active quantum well resonators and transparent waveguides, to facilitate the design of active WDM components.



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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/30823

A. CLASSIFICATION OF SUBJECT MATTER
IPC: **G02B 6/26(2006.01),6/42(2006.01)**

USPC: 385/32

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. : 385/31, 32, 39, 43

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched
 NONE

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)
 Please See Continuation Sheet


C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2002/0025105 A1 (OKAYAMA) 28 February 2002 (28.02.2002), Figure 1; paragraphs 0011, 0014, 0030, 0042, 0070, 0083, 0105.	1-4, 6, 11
X,P	US 2005/0025199 A1 (MA) 03 February 2005 (03.02.2005), Figures 3, 3A, 4B; paragraphs 0004, 0014, 0022.	1, 2, 6-11
A	US 2004/0150043 A1 (HOLM et al) 05 August 2004 (05.08.2004), see entire document.	1-11

Further documents are listed in the continuation of Box C. See patent family annex.

* Special categories of cited documents:	"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
"A" document defining the general state of the art which is not considered to be of particular relevance	"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
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"O" document referring to an oral disclosure, use, exhibition or other means		
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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US05/30823

Continuation of B. FIELDS SEARCHED Item 3:

EAST: US-PGPUB; USPAT; EPO; JPO; DERWENT

search terms: (dielectric\$1 silicon si GAS GAAS gallium adj1 arsenide sapphire\$1 gallium adj1 nitride\$1) near12 (waveguide\$1 wave near1 guide\$1); dielectric\$1 same (waveguides wave near1 guides) same layers; dielectric\$1 near12 layer\$1; (ring\$1 disc\$1 disk\$1) near12 resonat\$5 same (wave near1 guides waveguides); (rig\$1 disc\$1 disk\$1) same resonat\$5 same (wave near1 guides waveguides); dop\$5 near12 (waveguide\$1 wave near1 guide\$1); (electr\$5 conduct\$5 electro\$4 wire\$2 volt\$4) same (waveguide\$1) wave near1 guide\$1); dop\$5 same (waveguide\$1 wave near1 guide\$1); (resona\$5 ring\$1 disc\$1 disk\$2 microring\$2 miroresona\$4 microdisk\$3) near12 waveguide\$2 near12 substrate; (substrat\$1 near7 waeguide\$2 near5 reson\$4 same vertic\$4 near3 coupl\$4