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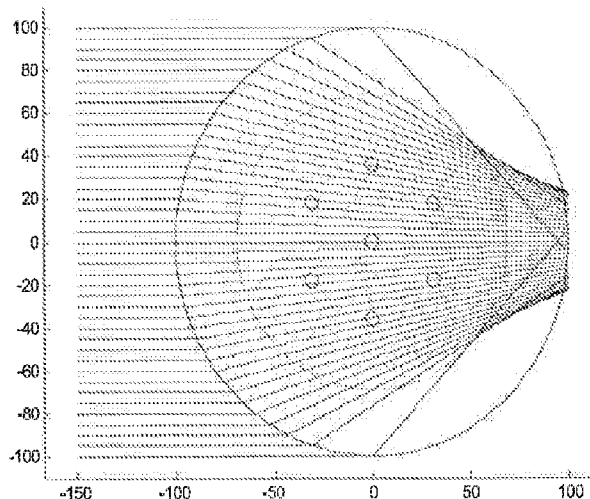
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(54) Title: METHOD OF OPTIMIZING MULTICORE OPTICAL FIBER



(57) Abstract: A method of designing multicore optical fibers is provided. A geometry for the core arrangement is selected. At least one of i) core width, ii) core position with respect to other cores, or iii) orientation with respect to incoming, outgoing, or at least partially traversing radiation such as an inscription beam are optimized. A design space is created in which no core shadows or blocks any other core with respect to incoming, outgoing, or at least partially traversing radiation. Optimization generally includes tracing tangents of core widths against an orthogonal axis and ensuring no overlap of space between said tangents on said axis. For twisted fiber, optimization also includes optimizing effective length and twist rate of the fiber. Devices entailing such fibers, such as multicore pump coupler and multicore fiber distributed feedback laser, are also contemplated.

Fig. 2



A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - G02B 6/036 (2013.01)

USPC - 385/126

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) Classification(s): G02B 6/036; 6/02 (2013.01)

USPC Classification(s): 385/126, 123, 125, 127

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)

MicroPatent (US Granted, US Applications, EP-A, EP-B, WO, JP, DE-G, DE-A, DE-T, DE-U, GB-A, FR-A); DialogPro (Derwent, INSPEC, NTIS, PASCAL, Current Contents Search, Dissertation Abstracts Online, Inside Conferences); IP.com; IEEE.com; Google Scholar, seven core optical fiber optimization shadow blockage, multicore fiber core tangent overlap, trace, tangent trace, core trace, hexagon, inscript

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	WESTBROOK, P. et al. "A seven core fiber DFB". In: Bragg Gratings, Photosensitivity, and Poling in Glass Waveguides; 12 Photonics, June 17-20, 2012. [retrieved on 2013-10-08], Colorado Springs, Colorado, United States. Advanced Photonics Congress, 2012. Retrieved from the Internet <URL: http://www.opticsinfobase.org/abstract.cfm?URI=BGPP-2012-BW3E.4 >, <DOI: 10.1364/BGPP.2012.BW3E.4> Entire document.	1-14
A	HECHT, E. Optics. San Francisco: Addison Wesley, fourth edition, 2002. ISBN 0-8053-8566-5, figure 5.71, equations 5.63 and 5.64, pages 193-201, especially pages 194-195.	1-14
A	ASKINS, C. et al. "Inscription of Fiber Bragg Gratings in Multicore Fiber". In: Bragg Gratings, Photosensitivity, and Poling in Glass Waveguides. 2007. [retrieved on 2013-10-08], Quebec City, Canada. Optical Society of America, 2007. Retrieved from the Internet <URL: http://www.opticsinfobase.org/abstract.cfm?id=141651 > <DOI: 10.1364/BGPP.2007.JWA39> Entire document.	1-14

 Further documents are listed in the continuation of Box C.

* 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

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"P" document published prior to the international filing date but later than the priority date claimed

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