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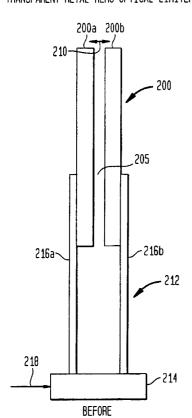
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(54) Title: APPARATUS AND METHOD FOR CONTROLLING OPTICS PROPAGATION BASED ON A TRANSPARENT METAL STACK

TRANSPARENT METAL-MEMS OPTICAL LIMITER



(57) Abstract: A device and method of optics propagation and signal control integrated with micro-electro-mechanical-switches (MEMS). This device modifies optical transmission properties of a transparent multilayer metal stack by mechanically varying the thickness of an air gap between layers in the stack. This is accomplished by utilizing MEMS coupled with the stack to change the optical path in a given layer of the transparent multilayer metal stack. This can be accomplished by developing a hybrid combination of transparent multilayer stacks and MEMS, wherein an air gap is used as one of the dielectric layers. The air gap thickness can be controlled by the MEMS device thereby enabling dramatic control of the optical path.



WO 01/46740 A3



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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER IPC 7 G02B26/02 G013 G01J3/26 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 7 G01J 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 practical, search terms used) EPO-Internal C. DOCUMENTS CONSIDERED TO BE RELEVANT Category ° Citation of document, with indication, where appropriate, of the relevant passages Relevant to claim No. Χ US 5 914 804 A (GOOSSEN KEITH WAYNE) 1,2,4, 22 June 1999 (1999-06-22) 9 - 11column 2, line 25 - line 48 Υ column 3, line 1 - line 20 Υ US 5 920 391 A (SUSKI JAN ET AL) 5 6 July 1999 (1999-07-06) column 8, line 19 - line 24 column 9, line 42 -column 10, line 57 WO 93 09422 A (VALTION TEKNILLINEN) 1,2,4, χ 13 May 1993 (1993-05-13) 9-11 page 2, line 6 - line 23 page 4, line 15 -page 5, line 3 χ DE 43 34 578 A (ROSSBERG DIRK WINFRIED 1,2,4, DIPL IN) 20 April 1995 (1995-04-20) 9-11 claims 7,9 -/--Further documents are listed in the continuation of box C. χ Patent family members are listed in annex. Χ 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 "A" document defining the general state of the art which is not considered to be of particular relevance invention earlier document but published on or after the international *X* document of particular relevance; the claimed invention filing date 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 "Y" document of particular relevance; the claimed invention citation or other special reason (as specified) cannot be considered to involve an inventive step when the document is combined with one or more other such docu-"O" document referring to an oral disclosure, use, exhibition or other means ments, such combination being obvious to a person skilled document published prior to the international filing date but later than the priority date claimed "&" document member of the same patent family Date of the actual completion of the international search Date of mailing of the international search report 13 July 2001 20/07/2001 Name and mailing address of the ISA Authorized officer European Patent Office, P.B. 5818 Patentlaan 2 NL - 2280 HV Rijswijk Tel. (+31-70) 340-2040, Tx. 31 651 epo nl, Mollenhauer, R Fax: (+31-70) 340-3016

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