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**United States Patent** [19]  
**Bishop et al.**

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[45] **Date of Patent:** **Aug. 10, 1999**

[54] **WDM SOURCE FOR ACCESS APPLICATIONS**

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[75] Inventors: **David J. Bishop**, Summit; **Joseph E. Ford**, Oakhurst; **James A. Walker**, Howell, all of N.J.

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[57] **ABSTRACT**

[21] Appl. No.: **08/778,120**

[22] Filed: **Jan. 2, 1997**

**Related U.S. Application Data**

[60] Provisional application No. 60/018,417, May 28, 1996.

[51] **Int. Cl.<sup>6</sup>** ..... **H04J 14/02**

[52] **U.S. Cl.** ..... **359/124; 359/130; 359/290**

[58] **Field of Search** ..... 359/124, 130, 359/290, 291; 385/52

The present invention provides an apparatus and method for a single-source wavelength division multiplexed (WDM) signal. According to the invention, light from a broad wavelength bandwidth or multiwavelength source is delivered, over one or more input optical fibers, to a device for spatially separating the light into a plurality of spectral components each having a different wavelength. The device further directs the spectral components along separate optical paths. A modulator array is provided containing a plurality of optical modulators spaced to each receive one of the different spectral components. Information is encoded on each spectral component through the action of each modulator. The encoded spectral components originating from a given input fiber are combined to generate a multiplexed optical signal.

[56] **References Cited**

**U.S. PATENT DOCUMENTS**

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**21 Claims, 6 Drawing Sheets**

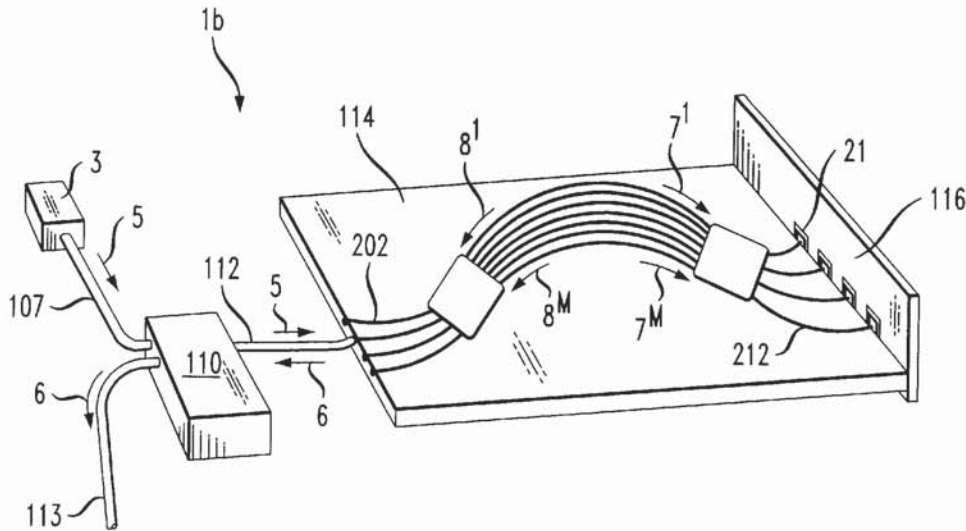


FIG. 1

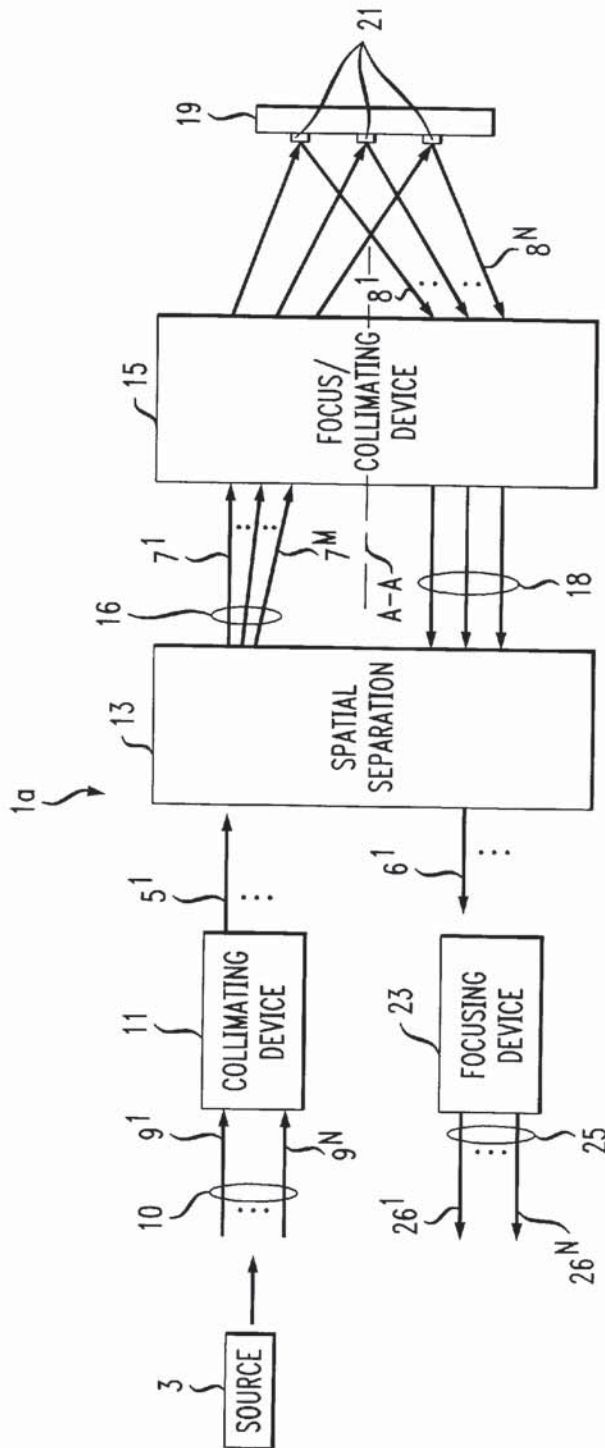


FIG. 2

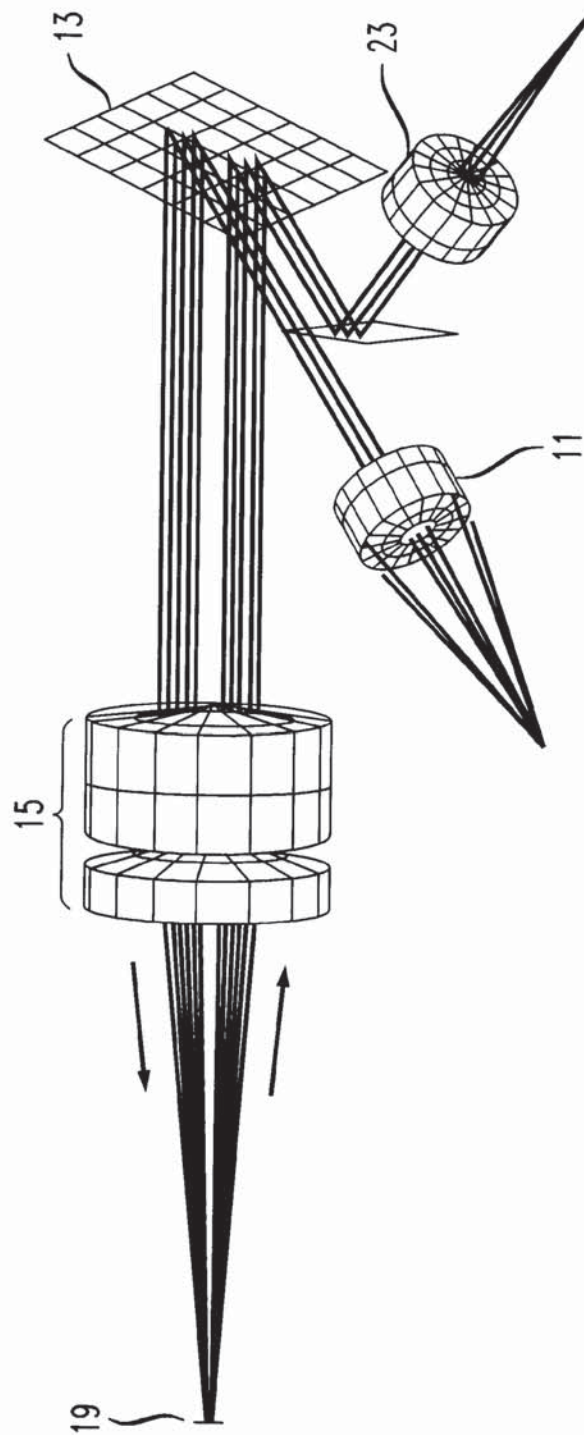


FIG. 3

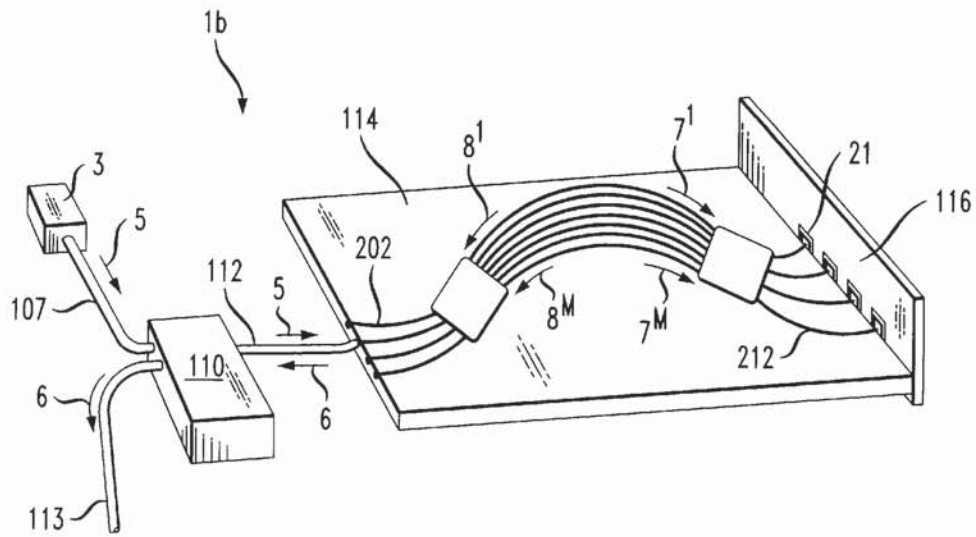


FIG. 4

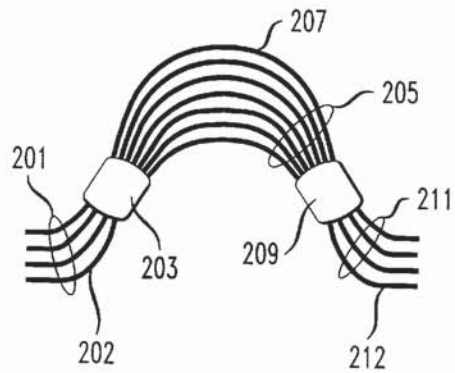
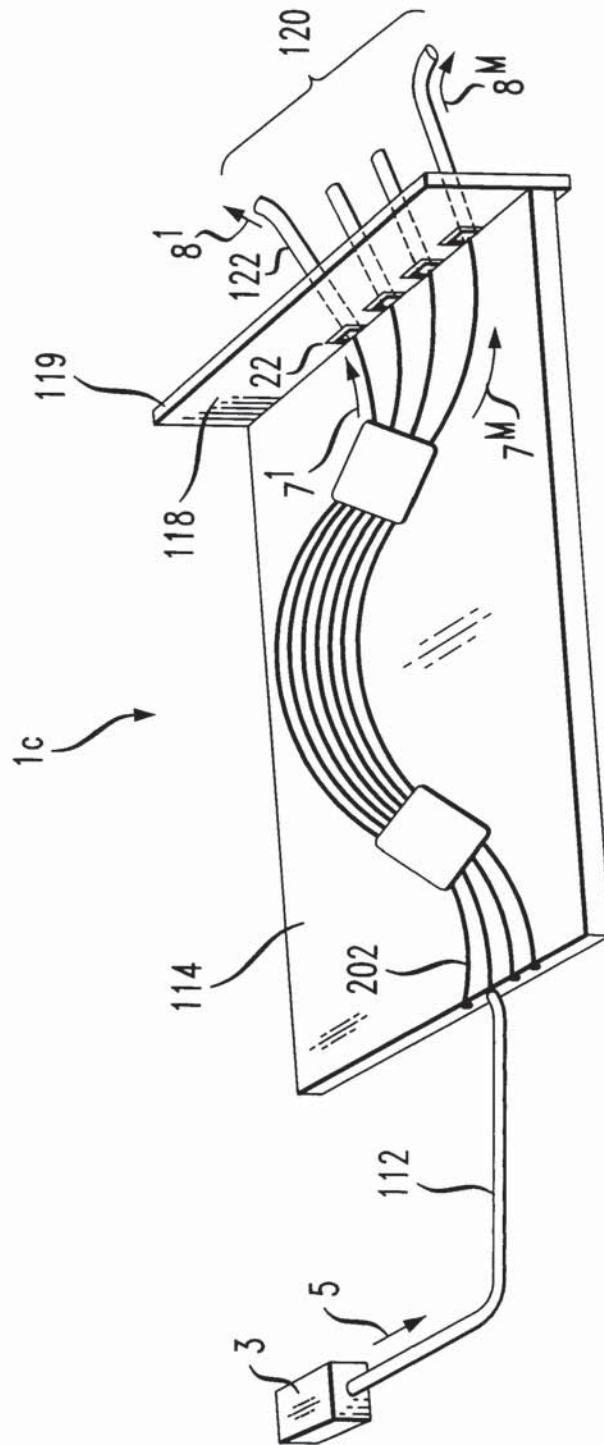


FIG. 5



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