Patent Abstracts

These Patent Abstracts of recently issued patents are intended to provide the minimum information necessary for readers to determine if they are interested in examining the patent in more detail. Complete copies of patents are available for a small fee by writing: U.S. Patent and Trademark Office, Box 9, Washington, D.C. 20231.

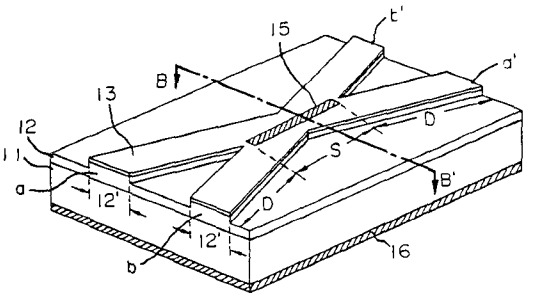
4,795,225 Jan. 3, 1989

Semiconductor Optical Switch

Inventors: Kazuo Sakai, Yuichi Matsushima, and Katsuyuki Utaka.
Assignee: Kokusai Denshin Denwa Kabushiki Kaisha
Filed: Jan 13, 1988

Abstract—An optical switch is disclosed in which a switching section for switching the optical path of an incident light is formed in a region where two semiconductor optical waveguides cross each other The switching section is composed of n-, i-, p-, i- and n-type semiconductor layers laminated in that order, each i-type layer being formed by a superlattice layer composed of a plurality of semiconductor thin films so that the i-type layer is higher in the effective refractive index and smaller in the effective energy gap than each n-type layer. The impurity concentrations of the n-, i-, p-, i-, and n-type layers and the thicknesses of the i-, p-, and i-type layers are determined so that the i-, p- and i-type layers are depleted in a thermal equilibrium state

4 Claims, 5 Drawing Sheets



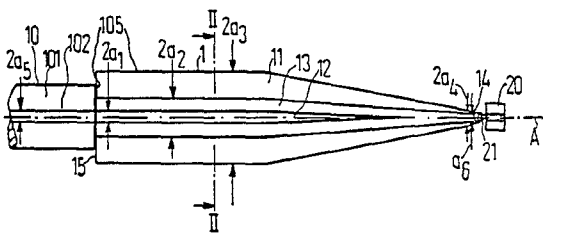
4,795,228 Jan. 3, 1989

Fiber Taper Particularly Useful for Coupling a Monomode Fiber to a Semiconductor Laser

Inventor: Hartmut Schneider.
Assignee: Siemens Aktiengesellschaft
Filed: Nov 24, 1986

Abstract—A fiber taper in the form of a fiber with a conically tapering at one end and having a step-shaped refractive index profile which is particularly used for coupling a single-mode fiber to a semiconductor laser The fiber will have a core with a high index of refraction surrounded by an intermediate core layer with an index of refraction being lower by a defined index of refraction difference than the index of refraction of the core The intermediate core layer is surrounded by a jacket or cladding layer of a lower refractive index which is lower than the refractive index of the core layer by a defined refractive index difference An expanding beam is established given such a taper and an adiabatic mode matching from one to the other core can be achieved along the taper

4 Claims, 1 Drawing Sheet



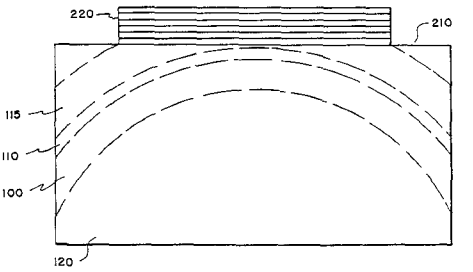
4,795,233 Jan. 3, 1989

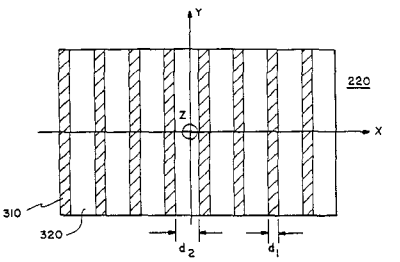
Fiber-Optic Polarizer

Inventor: Chin L. Chang.
Assignee: Honeywell Inc
Filed: Mar 9, 1987

Abstract—In the present invention, a multilayer stack of alternating layers of a metal and a dielectric is deposited directly onto the surface of an optical fiber that has been processed to remove the cladding from one side of the fiber. The multilayer metal-dielectric structure is constructed to give high birefringence and large differential attenuation for two orthogonal polarizations.

24 Claims, 4 Drawing Sheets





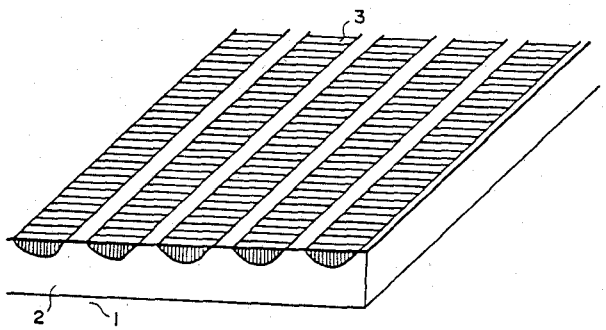
4,795,236 Jan. 3, 1989

Optical Low-Pass Filter Utilizing a Phase Grating

Inventor: Kouichi Ise.
Assignee: Sony Corporation.
Filed: Dec. 20, 1985.

Abstract —An optical low-pass filter including a phase grating, wherein the grating is implanted inwardly from the surface of a substrate, the grating having a uniform repetitive period and having a refractive index different from that of the substrate.

7 Claims, 5 Drawing Sheets



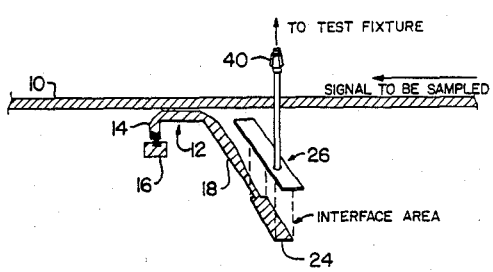
4,795,989 Jan. 3, 1989

MMW Microstrip Coupler Having Movable Test Probe

Inventors: Rebecca A. Hart and Michael J. Gawronski.
Assignee: Honeywell, Inc.
Filed: Feb. 11, 1988.

Abstract —A microwave and millimeter-wave hybrid or monolithic microstrip test probe assembly provides a noninvasive radio frequency test point in a microstrip circuit. The probe assembly comprises a microstrip coupler. (12) adjacent a microstrip line (10) in the circuit for sampling a small amount of microwave energy propagating along said microstrip line. A stripline circuit (20, 22 and 24) is connected to the microstrip coupler. The stripline circuit includes a pad area (24) and a probe (26) moveable to overlay the pad area. The probe forms a ground plane with respect to the pad area, and a coaxial line (34) has an outer conductor connected to the probe and an inner conductor projecting through a hole in the probe. The probe assembly provides an RF test point within a microstrip circuit which allows an accurate, calibrated and repeatable means of sampling a microstrip signal while not affecting the normal performance of the hybrid or monolithic circuit. The probe (26) is removable and is introduced into the circuit for testing purposes.

7 Claims, 2 Drawing Sheets



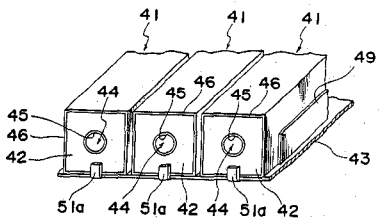
4,795,992 Jan. 3, 1989

Mount for Dielectric Coaxial Resonators

Inventors: Koji Saito, Tadahiro Yorita, and Hiroshi Okawa.
Assignee: Murata Manufacturing Co. Ltd.,
Filed: Dec. 12, 1986.

Abstract —An assembly which comprises a plurality of dielectric coaxial resonators, each comprising a generally elongated, polygonally sectioned dielectric body having a hollow coaxially defined therein so as to extend completely through the length of the dielectric body, and also having inner and outer conductors formed respectively on inner and outer peripheral surfaces thereof, and a mount for the support thereon of the coaxial resonators. The mount has side abutments set up from the mount for engagement with respective sides of the coaxial resonators whereby the position of each coaxial resonator relative to the mount can be restricted by the corresponding side abutments.

11 Claims, 3 Drawing Sheets



4,795,993 Jan. 3, 1989

Matched Dual-Mode Waveguide Corner

Inventors: Pyong K. Park and Robert L. Eisenhart.
Assignee: Hughes Aircraft Company.
Filed: Mar. 26, 1987.

Abstract —A polarized, mitered corner (32) is constructed using a multiple surface reflector in a square waveguide corner. The multiple surface reflector (34) provides a mitered corner having one effective miter size for the *E*-plane mode and a different effective miter size for the *H*-plane mode (42, 44). The surfaces may comprise ridges which are parallel to the *E*-field in one of the two modes, so that the ridges behave as the reflecting surface for that mode while the backplane, upon which the ridges are formed, serves as the reflecting surface for the other mode. An alternate embodiment wherein the two reflecting surface comprise a plurality of parallel wires, is also disclosed.

19 Claims, 5 Drawing Sheets