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,

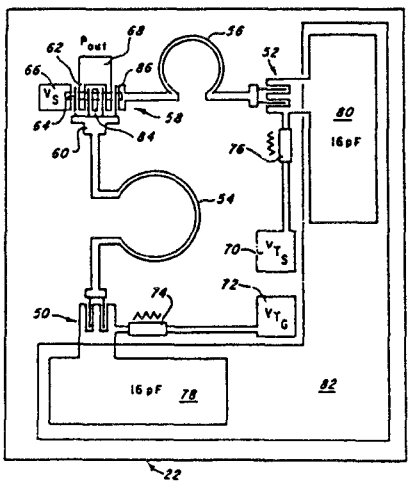
4,481,486 Nov. 6, 1984

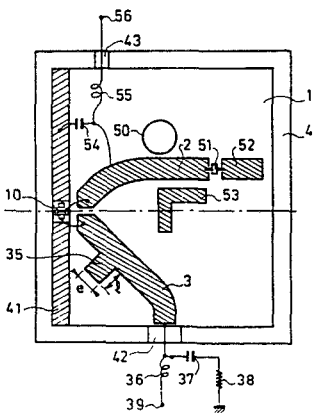
Ultra-High Frequency Oscillator with Dielectric Resonator of the Compact Hybrid Circuit Type

Inventors: Alain Bert and Didier Kaminsky.
Assignee: Thomson-CSF
Filed: Mar. 25, 1982

Abstract—An ultra-high frequency oscillator having a very high thermal stability using a transistor coupled by a microstrip-type transmission line to a dielectric resonator with a very low temperature coefficient. It incorporates a field effect or bipolar transistor and an insulating substrate metallized or formed of metal on one face forming the ground plane. The latter projects over the substrate at a point close to two microstrip lines deposited on the face of the substrate opposite to the ground plane, the transistor being welded to said projecting point of the ground plane and to the microstrip lines. The assembly forms a compact hybrid circuit.

7 Claims, 9 Drawing Figures





4,481,487 Nov. 6, 1984

Monolithic Microwave Wide-Band VCO

Inventors: Gailon E. Brehm and Bentley N. Scott.
Assignee: Texas Instruments Incorporated.
Filed: Aug. 14, 1981.

Abstract—A monolithic microwave voltage-controlled oscillator including one or more FETS integrated with a wide-ratio varactor. The varactor includes interdigitated anode and cathode patterns laid out on a single thin epitaxial layer. The punch through voltage of the epitaxial layer, and hence the resistivity-thickness product of the epitaxial layer, must be low Since the substrate is semi-insulating, punch through to the substrate does not become uncontrollable, but simply permits modulation of the capacitance over a very wide range. The FET's are formed in the same epitaxial layer with the varactor, and complicated doping profiles are not required.

23 Claims, 5 Drawing Figures

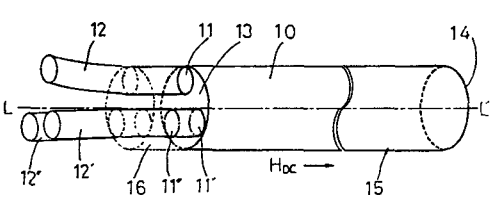
4,482,202 Nov. 13, 1984

Optical Glass Fiber Transmission Lines Coupled Junction Circulators

Inventor: Tsukasa Nagao.
Notice: The portion of the term of this patent subsequent to Apr. 5, 2000 has been disclaimed.
Filed: Sept 20, 1982.

Abstract—This invention discloses an optical circulator compatible with optical glass fiber transmission lines in optical communications in the wave length range of 1.0 ~ 1.7 microns. An optical circulator embodiment of the invention utilizes a magnetooptic circulator cylinder with the entry and reflective ends, at least three coupling glass-fiber transmission lines being connected to the entry end. The biasing magnetic field is applied in parallel with the common axis. This circulator embodiment of the invention possesses advantages in consisting of minimal constituents, and in being easy to make and simple to adjust.

2 Claims, 3 Drawing Figures



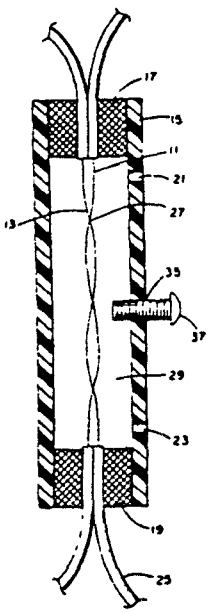
4,482,203 Nov. 13, 1984

Adjustable Coupling Device for a Fiber-Optic Power Divider

Inventors David W. Stowe and Paul M. Kopera.
Assignee: Gould Inc.
Filed: Dec. 21, 1983.

Abstract—An adjustable coupling device for fiber-optic power dividers in which the coupling characteristics of the divider are influenced by application of transverse forces on the optic fibers in a repeatable fashion. The preferred embodiment consists of a pair of optical fibers which are evanescently coupled by having a portion of each etched to a core and twisted about the other. The etched and twisted portions of these fibers are encased in a rigid housing filled with an elastic filler material. Means are provided for creating forces in the filler material which are transverse to the fibers.

11 Claims, 3 Drawing Figures



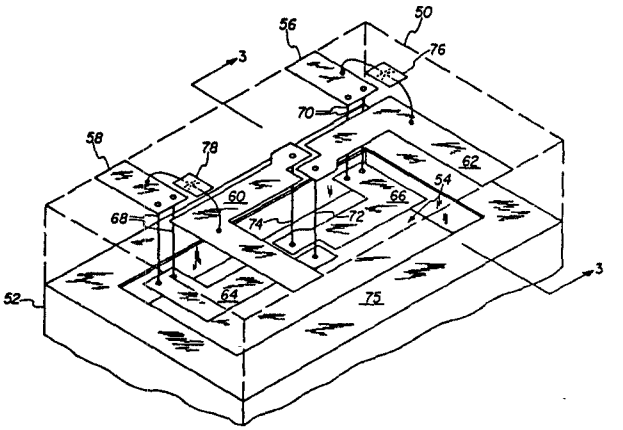
4,482,873 Nov. 13, 1984

Printed Hybrid Quadrature 3 dB Signal Coupler Apparatus

Inventor: Orville K. Nyhus.
Assignee: Rockwell International Corporation.
Filed: Sept. 16. 1982.

Abstract—A printed hybrid quadrature 3 dB signal coupler using discrete components for the capacitive coupling and plated through holes to effect an approximation of twisted wire coupling whereby the completed product occupies much less physical space on a printed circuit board than the normal quarter-wavelength coupler.

3 Claims, 3 Drawing Figures



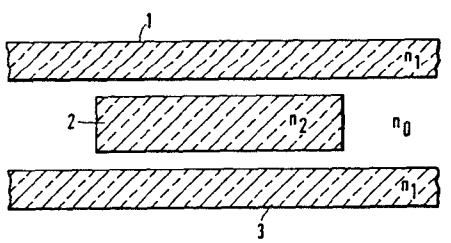
4,483,583 Nov. 20, 1984

Selective Directional Coupler for Guided Waves

Inventor: Hans-Georg Unger.
Assignee: Licentia Patent-Verwaltungs-GmbH.
Filed: Mar. 8, 1982.

Abstract—In a selective directional coupler composed of two outer waveguides, the outer waveguides are coupled together by an intermediate waveguide disposed between the two outer waveguides, the intermediate guide being constructed and positioned such that at a selected coupling frequency its coupling mode is in phase synchronism with the transmission modes in the two outer waveguides.

20 Claims, 8 Drawing Figures



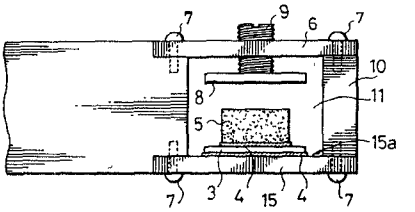
4,484,162 Nov. 20, 1984

Microwave Oscillator

Inventors: Hiroshi Kamada and Akira Takayama.
Assignee: Alps Electric Co., Ltd.
Filed: Aug. 5, 1982.

Abstract—In a microwave oscillator having a metal frame which defines a cavity portion, a dielectric resonator which is received in the cavity portion, a trimmer plate which opposes to the dielectric resonator in the cavity portion, a flat plate which closes one open end face of the cavity portion and to which the trimmer plate is movably attached; the improvement wherein the cavity portion has a second open end face, and this open end face is closed by a second flat plate to which the dielectric resonator is fastened. The dielectric resonator is readily assembled, and the parallelism between the dielectric resonator and the trimmer plate is readily established.

12 Claims, 4 Drawing Figures



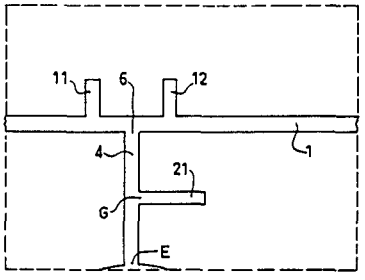
4,484,163 Nov. 20, 1984

Arrangement for Biasing High-Frequency Active Components

Inventor: Frans C. de Ronde.
Assignee: U.S. Philips Corporation.
Filed: May 21, 1982.

Abstract—An arrangement for applying a dc bias current to an RF active component, such as a field effect transistor, serially-connected with an RF transmission line. The biasing current is supplied by a transmission line section connected at a junction to the transmission line. Two conductive strips, connected in parallel with the transmission line, on opposite sides of the junction, form a band-pass filter. Each of these strips is situated at a distance from the junction which is equal to approximately one-eighth of the wavelength of the signal frequency transmitted on the transmission line.

2 Claims, 2 Drawing Figures



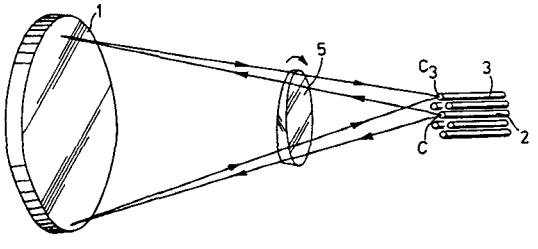
4,484,793 Nov. 27, 1984

Switching Device Between Optical Fibers

Inventor: Jean-Pierre Laude.
Assignee: Instruments S. A.
Filed: May 24, 1982.

Abstract—Switching device between optical fibers, for ensuring continuity of transmission between the end of a first fiber (2) and the end of any of a group of other fibers (3). The end of the first fiber (2) is placed at the center (C) of a spherical mirror (1) and the ends of the other fibers (3) are arranged symmetrically relative to the first fiber in the plane perpendicular to the axis and passing through the center (C). The device comprises, between the fibers (2,3) and the mirror (1), an optically deviating member (5) and means to rotate it on itself about the axis of the mirror (1).

5 Claims, 6 Drawing Figures



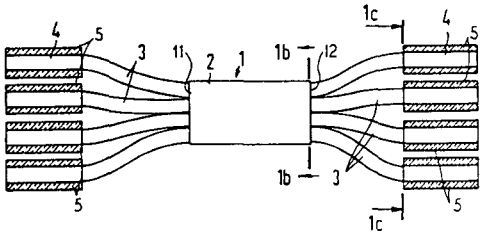
4,484,794 Nov. 27, 1984

Optical Star Coupler and the Method of Making

Inventor: Hans-Hermann Witte.
Assignee: Siemens Aktiengesellschaft.
Filed: Sept. 2, 1981.

Abstract—An optical star coupler for use in optical systems with multi-mode optical fibers for interconnecting two groups of system fibers, characterized by the star coupler comprising a mixing element, two groups of optical fiber elements and an arrangement for positioning the mixing element and the groups of fiber elements in the same plane. The mixing element is a planar waveguide which has an input and output end which are interconnected to groups of the fiber elements with a packing density of each group of the fiber elements at the input and output ends being as high as possible. The planar waveguide has a thickness approximately equal to the diameter of the fiber elements and the diameter of each of the fiber elements is approximately equal to the core diameter of the system fiber to which it is connected and all of the fiber elements are selected to be of one type of fiber which are either gradient fibers or stepped profile fibers. To position the mixing element and the group of fiber elements in the same plane, a method includes forming a sandwich of the mixing element between a cover and substrate, forming a pair of sandwiches for each group of fiber elements between a substrate and a cover element, assembling these sandwiches on a support element with the polished end surfaces of the fiber element sandwiches engaging the polished end surfaces of the mixing element sandwich, and securing the sandwiches in the assembled position.

8 Claims, 5 Drawing Figures



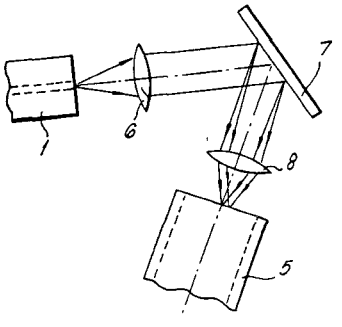
4,484,795 Nov. 27, 1984

Delay Equalization for Single Mode Optical Fibers

Inventor: Kevin C. Byron.
Assignee: International Standard Electric Corporation
Filed: July 1, 1982.

Abstract—The source wavelength dependent delay produced in a single mode fiber is equalized by causing the emergent light beam therefrom to be incident on a dispersion element which is such as to transmit the beam of light at an angle or position dependent on the source wavelength. The transmitted beam of light is launched into a length of multimode fiber such that the beam emergent therefrom is equivalent to the single mode fiber emergent beam but with the delay thereof equalized. If the multimode fiber is step index fiber the transmitted light at which the delay is the least is launched thereinto at the maximum angle, whereas the transmitted light at which the delay is the most is launched thereinto along the axis thereof. Alternatively, a graded index fiber can be employed for the multimode fiber.

10 Claims, 2 Drawing Figures



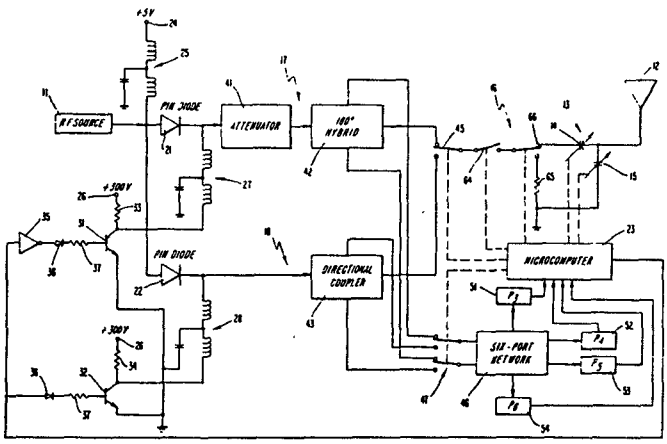
4,485,360 Nov. 27, 1984

Apparatus for and Method of Impedance Matching

Inventor: Glen Seward.
Assignee: Cincinnati Electronics Corporation.
Filed: July 16, 1982.

Abstract—An RF load is matched to an RF source by a matching network having series and shunt impedances connected between the source and load. A network coupled to the load derives a first RF signal responsive to RF energy reflected from the load. Another network responsive to the first RF signal derives plural RF signals, each having an amplitude that is a different function of the magnitude and phase angle of the reflected energy. In response to the amplitudes of the plural RF signals, the values of the series and shunt impedances are controlled.

29 Claims, 3 Drawing Figures



4,485,362 Nov. 27, 1984

Variable Microwave Stripline Power Divider

Inventors: Morris Campi, Frederick Farrar, and Daniel Shames.
Assignee: The United States of America as represented by the Secretary of the Army.
Filed: Oct. 29, 1982.

Abstract—A variable microwave stripline power divider, in which the power seen at each of two outputs can be varied over a wide range without appreciably changing the power seen at the other output. In one embodiment, this is accomplished mechanically by shorting posts connecting the patch member to a ground plane member of the device at selected points. In another embodiment of the invention, this is accomplished electronically by a plurality of electronic switching devices connected between a like plurality of patch member shorting points and a ground plane member. which are selectively activated by a microcomputer.

13 Claims, 8 Drawing Figures