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,

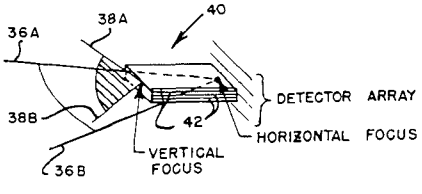
4,494,827 Jan. 22, 1985

Imaging Apparatus for Transverse Electrode Electrooptic Tunable Filter

Inventors: Richard L. Abrams, David M. Henderson, Douglas A. Pinnow, and Ronald R. Stephens.
Assignee: The United States of America as represented by the Secretary of the Air Force.
Filed: Oct. 20, 1982.

Abstract—An imaging apparatus which permits the use of a transverse electrode electrooptic tunable filter (TEOTF), despite its obscured aperture, to produce a high quality image. The imaging apparatus includes a suitable conventional anamorphic input optical system in combination with a stacked plurality of TEOTF's in which the platelet of each TEOTF is made of an electrooptic material of a known index of refraction (such as CdS of an index of ~ 2.4), and is clad between its surface and its electrodes with a material having a lower index of refraction than the platelet material (such as SiO_2 of an index of ~1 5).

5 Claims, 5 Drawing Figures



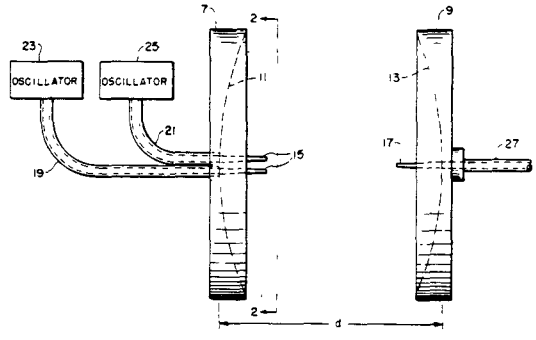
4,496,913 Jan 29, 1985

Millimeter-Wave Power Combiner Using Concave Reflectors

Inventors: Lothar Wandinger and Vahakn Nalbandian.
Assignee: The United States of America as represented by the Secretary of the Army
Filed: Nov. 24, 1982

Abstract—A mm wavelength power combiner comprising an open resonator comprising a pair of confronting concave reflectors which can be either spherical or parabolic. The resonator dimensions are many times the wavelength of the energy sources to be combined. A plurality of mm wave energy sources are applied to the resonator in such a way that the great majority of the energy bounces back and forth between the reflectors near the axis thereof in the fundamental or Gaussian mode. The design minimizes multimoding and diffraction losses.

10 Claims, 6 Drawing Figures



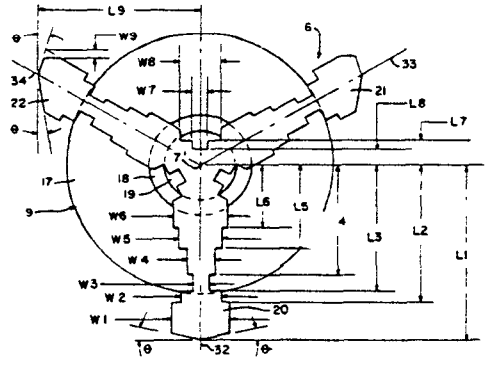
4,496,915 Jan. 29, 1985

Microwave Transmission Device Having Gyromagnetic Materials Having Different Saturation Magnetizations

Inventors: Moni G. Mathew and Thomas J. Weisz.
Assignee: TRW Inc.
Filed: Dec. 29, 1983.

Abstract—A multi-port microwave device, such as an isolator or circulator, for transmission of electromagnetic energy in TEM mode non-reciprocally between ports. The device exhibits low insertion loss, high return loss (low VSWR) and high isolation and is operable over a 100 percent or more bandwidth The microwave device includes a composite ferrite body between a circuit conductor and a ground plane. The composite ferrite body includes at least two different types of ferrite material where each one is selected to provide different frequency characteristics over the frequency pass band of the device.

21 Claims, 5 Drawing Figures



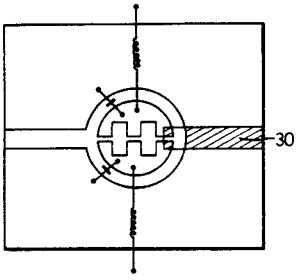
4,496,918 Jan. 29, 1985

Radio Frequency Alternate-Path Phase Switch

Inventor: William Thorpe.
Assignee: British Telecommunications.
Filed: Jan. 27, 1983.

Abstract—An alternate-path phase switch has a primary conductive region and control regions which provide alternate paths in gaps formed with the primary region. Switching means, e.g., PIN-diodes, control the potentials on the control regions and select the path followed by microwave radiation. Each path results in a different phase in the output so the device acts as a phase modulator.

9 Claims, 5 Drawing Figures



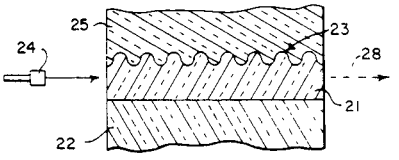
4,497,535 Feb. 5, 1985

Optical Pulse Generator

Inventors: Herbert G. Winful and Gene D. Cooperman.
Assignee: GTE Laboratories Incorporated
Filed: Mar. 19, 1982.

Abstract—A corrugated nonlinear optical waveguide converts a continuous input light beam into a train of pulses. The waveguide material is indium antimonide (InSb).

2 Claims, 4 Drawing Figures



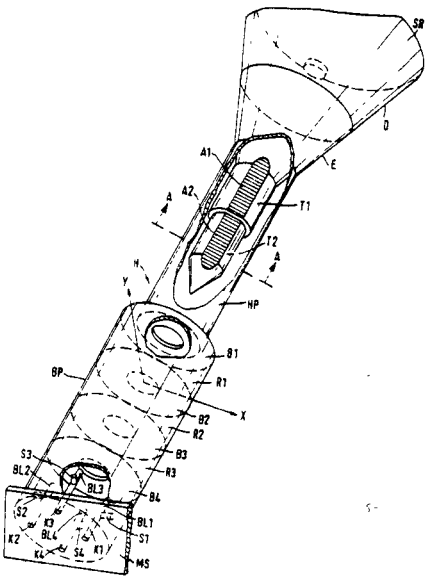
4,498,061 Feb. 5, 1985

Microwave Receiving Device

Inventors: Günther Mörz and Wilhelm Milcz.
Assignee: Licentia Patent-Verwaltungs-GmbH.
Filed: Mar. 5, 1982.

Abstract—A receiver for counterclockwise and clockwise circularly polarized microwave signals of the type comprising a receiving antenna with a feeder system, a polarization converter, a polarization filter and a circuit for converting the microwave signals of both polarization directions from the high frequency to the intermediate frequency plane. A portion of the feeder waveguide belonging to the feeder system of the receiving antenna is designed as a bandpass filter which is effective for both polarization directions. A microstripline substrate, which carries the frequency converting circuit, is connected with the output of the feeder waveguide and is provided with an arrangement of coupling in the energies of the waveguide modes of both polarization directions. The polarization converter is either directly integrated in the feeder waveguide or the polarization conversion is effected by coupling the waveguide modes into the microstripline circuit.

22 Claims, 8 Drawing Figures



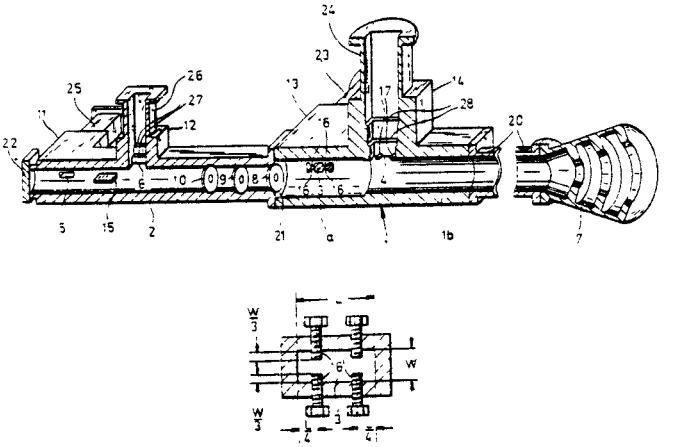
4,498,062 Feb. 5, 1985

Waveguide Structure for Separating Microwaves with Mutually Orthogonal Planes of Polarization

Inventors: Piercarlo Massaglia, Enrico Pagana, and Dario Savini.
Assignee: Sip-Societa Italiana Per L'Esercizio Telefonica p A.
Filed: Mar 25, 1983.

Abstract—A waveguide structure carrying microwaves with two mutually orthogonal planes of polarization and in two different frequency bands, transmitted and received by an associated antenna, comprises two orthomode transducers in the form of coaxial cylindrical guide members of different inner diameters, the smaller diameter transducer terminating in a short-circuiting end wall while the larger diameter transducer, adjoining same at an annular shoulder, extends to a feed horn confronting a reflector. Each transducer is formed with two elongate peripheral access slots, opening onto respective rectangular-section branches, which are longitudinally bisected by mutually perpendicular axial planes while being relatively offset in axial direction. Each slot of the larger diameter transducer is partly traversed by two pairs of conductive dividers, at locations spaced from its ends by about a quarter of the slot length and of a height equal to about a third of the slot width, serving to suppress the propagation of higher modes of higher frequency waves in the respective branch guides.

12 Claims, 2 Drawing Figures



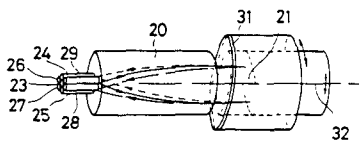
4,498,730 Feb. 12, 1985

Optical Switching Device

Inventors: Tsutomu Tanaka, Yoshinobu Tsujimoto, Hiroyuki Serizawa, and Katsuji Hattori.
Assignee: Matsushita Electric Industrial Co.
Filed: Apr 22, 1981.

Abstract—Respective end faces of two or more optical waveguides (23 to 29) are connected on one end face of a focussing rod lens (20) and a reflection means (21) having a reflection plane tilted with a specified angle (α) to the normal plane to the lens axis is disposed behind the other end face of the focussing rod lens (20) and angle of reflection plane of the reflection means (21) is varied by rotating the reflection means (21) around the lens axis (203) or by means of a piezo-electric driving device (30), thereby attaining selective switching of the waveguides (from 23 to selected one of 24 or 29) or varying the amount of rays to be transmitted through the waveguides (23 and 24 of FIG 4), or thereby modulating the rays By utilizing a semitransparent filter forming another tilted reflection plane, the amount of attenuation for different wavelength or connection of the waveguides are controlled separately.

48 Claims, 11 Drawing Figures



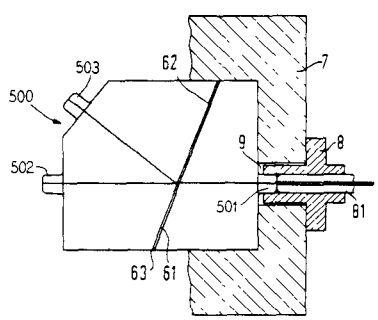
4,498,731 Feb. 12, 1985

Optical Waveguide Branch Coupler and Method of Manufacturing

Inventors: Gerhard Winzer and Romuald V. Tomkewitsch
Assignee: Siemens Aktiengesellschaft.
Filed: Mar. 30, 1983.

Abstract—An optical device such as a branch element comprising a body having at least one port with each port being formed by an integral cylindrical guide plug extend from an outer surface of the body and coaxially receiving an optical waveguide such as fiber with the end surface of the waveguide and the plug being coplanar. The optical device is made by assembling a plurality of parts having planar surfaces with the planar surfaces engaged with each other and with the parts having semi-cylindrical projections having a flat surface lying in the plane of the planar surfaces to aid in aligning the projections to form the guide plugs, the planar surfaces are provided with coacting adjustment portions comprising recesses receiving projections or posts

26 Claims, 5 Drawing Figures



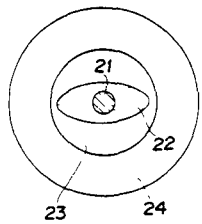
4,500,168 Feb. 19, 1985

Single Polarization Optical Fibers

Inventors: Hiroshi Kajioka, Toshihide Tokunaga, and Junkichi Nakagawa.
Assignee: Hitachi Cable, Ltd
Filed: June 17, 1982

Abstract—In the single polarization optical fiber of the present invention, an elliptical jacket is composed of $SiO_2-P_2O_5+B_2O_3$, whereby increase in transmission loss at long wavelength band is prevented. In the process for fabricating single polarization optical fibers of the invention, a starting silica tube is subjected to pressure reduction with an amount of pressure reduction in response to concentration of dopants $P_2O_5+B_2O_3$, whereby an ellipticity of the resulting elliptical jacket is made to be a pertinent value.

4 Claims, 9 Drawing Figures



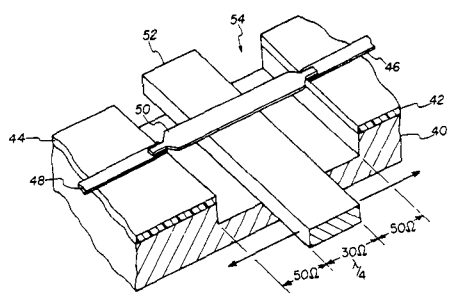
4,500,847 Feb. 19, 1985

Transistor Amplifier Variable Matching Transformer Apparatus

Inventor: Ben R. Hallford.
Assignee: Rockwell International Corporation.
Filed: June 14, 1982

Abstract—A variable transformer is illustrated to be used primarily with high frequency transistors and other high frequency amplifying means to provide optimum impedance matching characteristics for individual transistors in a circuit rather than trying to design a given circuit to be universally applicable to a range of transistor characteristic values

8 Claims, 6 Drawing Figures



4,500,859 Feb. 19, 1985

Filter for Existing Waveguide Structures

Inventors: Chung-Li Ren, Matthew V. Thompson, and Han-Chiu Wang.
Assignee: AT&T Bell Laboratories.
Filed: Apr. 5, 1983.

Abstract—An insertion filter is described for existing waveguide without modification. The filter includes a resilient bifurcated dielectric member (11) which conforms to the internal geometry of the waveguide (21) The dielectric member secures the position of a dielectric resonator (15) and a tuning screw (17) and retains their relative positions A stud (18) is mounted on one of the bifurcations of the dielectric member to compensate electrically for the presence of the member in the waveguide while the dielectric resonator attenuates waveguide energy in a prescribed frequency band.

5 Claims, 2 Drawing Figures