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, DC 20231.

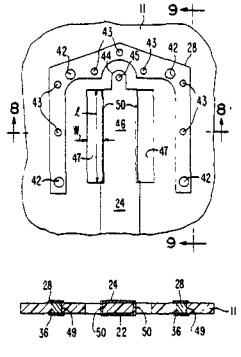
4,383,226 May 10, 1983

Orthogonal Launcher for Dielectrically Supported Air Stripline

Inventors: Evert C. Nygren; Ching C. Han; Edgar W. Matthews, Jr.; Jack E. Kelly; Paul D. Frank.
Assignee: Ford Aerospace & Communications Corporation.
Filed: Nov. 3, 1980.

Abstract—This device provides for a substantially orthogonal transition or connection point between a strip transmission line configuration (one conductor, or two conductors sandwiched around a dielectric support, positioned in air between two ground planes such as might be used in a microwave antenna feed network) and a coaxial line section. The particular construction of the "side-launch transition" suppresses spurious parallel plate modes, and, in the case of two conductors surrounding a dielectric, trapped modes which occur between the two conductors. A U-shaped upper "dam" and corresponding lower "dam," electrically interconnected at several points, surround the termination of the stripline conductor(s) and provide suppression of parallel plate moding at the transition. In the case of two conductors surrounding a dielectric, electrical interconnection at the terminal point of the stripline conductors suppresses the trapped modes before they can be launched. The system has been found to provide extremely low voltage standing wave ratios over a wide range of microwave frequencies.

3 Claims, 10 Drawing Figures



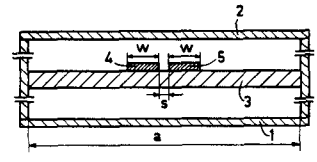
4,383,227 May 10, 1983

Suspended Microstrip Circuit for the Propagation of an Odd-Wave Mode

Inventor: Frans C. de Ronde.
Assignee: U.S. Philips Corporation.
Filed: June 23, 1981.

Abstract—A suspended microstrip circuit having a dielectric substrate arranged in parallel between two parallel metal planes. First and second strip conductors are provided on the substrate, the second strip conductor being in parallel with the first strip conductor and coupled thereto. A wave phenomenon can propagate through the conductor pair in an odd mode. The metal box accommodating the microwave circuit may now be much greater so that in most cases one box is sufficient. Microwave components such as Magic-T, series-T, shunt-T, circulators, filters, attenuators, can be implemented with the suspended microstrip line.

9 Claims, 21 Drawing Figures



4,386,328 May 31, 1983

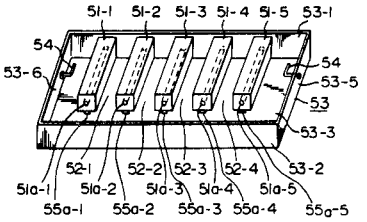
High-Frequency Filter

Inventors: Yoshio Masuda; Atsushi Fukasawa; Takuro Sato; Tatsumasa Yoshida; Hiromi Ando.
Assignee: Oki Electric Industry Co., Ltd.
Filed: Apr. 14, 1981.

Abstract—A high frequency filter for frequencies higher than the VHF band comprising of a closed conductive housing (**53**), a pair of input and/or output means (**54**) like an antenna provided at both the extreme ends (**53-5**, **53-6**) of said housing (**53**), a plurality of resonators (**51-1** through **51-5**, and **51***a*-**1** through **51***a*-**5**) arranged on a straight line between said antennas (**54**), each of said resonators having an elongated inner conductor (**51***a*-**1** through **51***a*-**5**) with a circular cross section, and an elongated rectangular dielectric body (**51-1** through **51-5**) surrounding said inner conductor, one end of each of said resonators being fixed at the single plane (**53-1**) of the housing (**53**) and the other end of each of said resonators being free standing. The length of said inner conductor and dielectric body is substantially $\frac{1}{4}$ wavelength, and the duration (**52-1** through **52-4**) between two resonators is determined according to the specified coupling coefficient for the desired characteristics of the filter. Due to the rectangular dielectric body (**51-1** through **51-5**), each resonator is

stably mounted on the housing (**53**), and then, the stable characteristics of the filter is obtained. Thus, the use in a vibrated circumstance like a mobile communication is possible. That rectangular dielectric body (**51-1** through **51-5**) also provides the larger coupling coefficients between resonators, and then, the wideband filter can be obtained.

17 Claims, 29 Drawing Figures



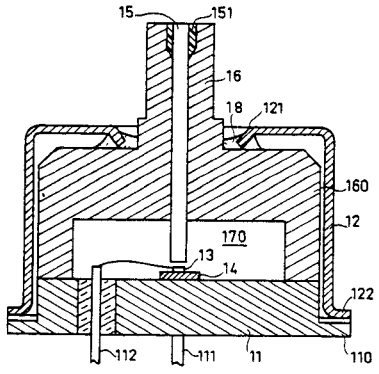
4,386,821 June 7, 1983

Opto-Electronic Coupling Head and Method for Fitting such a Head

Inventors: Jacques Simon; Bernard Defaut.
Assignee: Thomson-CSF.
Filed: Oct. 2, 1980.

Abstract—An opto-electronic coupling head which can either be an emission head coupling a light emitting diode to an optical fiber, or a reception head coupling an optical fiber to a photodiode. The head has a diode mounted on the base of a case for a semiconductor device and uses the cap of said case which has previously been stamped and perforated at the top. A fiber holder has a shoulder which abuts against the edges of the opening made in the cap and in conjunction with the electric welding of the cap to the base helps to fix the fiber holder in the case The optical filter is previously fixed by a deposit of solder in the axial opening of the fiber holder.

6 Claims, 5 Drawing Figures



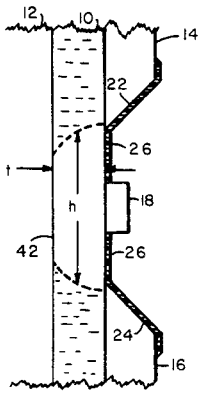
4,387,386 June 7, 1983

Microwave-Controlled Field Effect Switching Device

Inventor: Robert V. Garver.
Assignee: The United States of America as represented by the Secretary of the Army.
Filed: June 9, 1980.

Abstract—A microwave switching device replacing PIN diodes and operating at higher speeds requires reduced switching current. A field effect controlled device is utilized with no ground plane, for elimination of source-ground and drain-ground capacitance. Massive source and drain structures reduce terminal inductance. A low resistance active region provides dynamic switching capability improving over prior art devices in operating frequencies and speeds.

8 Claims, 4 Drawing Figures



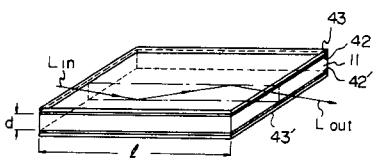
4,387,953 June 14, 1983

Optical Waveguide Device With Phase Matching Layers

Inventors: Masataka Shirasaki; Takeshi Obokata.
Assignee: Fujitsu Limited.
Filed: Mar. 30, 1981.

Abstract—An optical waveguide device is disclosed, which includes an optical waveguide member having a predetermined length and thickness, the thickness is far smaller than the length. The optical waveguide member is covered, on it's top and bottom surfaces, by phase-matching layers. The phase-matching layers function to substantially decrease the difference ($d\Delta$) between the phase shift (δ_p) of a P polarized light component and the phase shift (δ_s) of a S polarized light component, included in light to be transmitted through the optical waveguide member. The phase shift is created every time a reflection takes place on the top and bottom surfaces thereof.

21 Claims, 17 Drawing Figures



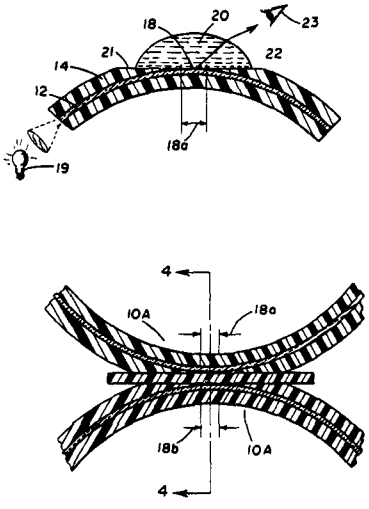
4,387,954 June 14, 1983

Method for Fabricating an Optical Waveguide Evanescent Wave Coupler Having an Interleaved Film

Inventor: J. Donald Beasley.
Assignee: Gould Inc.
Filed: Jan. 19, 1981.

Abstract—A method and an apparatus is disclosed for making an evanescent wave coupler. Two optical waveguides have a portion of the cladding material removed until the core is exposed. The two optical waveguides are placed in juxtaposition with an interleaf film between them. The interleaf film insures an accurate and constant spatial relation between the two optical waveguides to have reliable evanescent coupling therebetween.

1 Claim, 5 Drawing Figures



4,388,601 June 14, 1983

Symmetrizing Means for RF Coils in A Microwave Cavity

Inventors: Robert C. Sneed, Jr;
Robert G. MacNaughton;
James H. Jacobson.
Assignee: Varian Associates, Inc.
Filed: Sep. 30, 1981.

Abstract—A cylindrical ENDOR cavity with RF saddle coils disposed axially is symmetrized by shielding the end portions of the saddle coil within cylindrical conducting rings or cylinder portions whereby the Q of the cavity is substantially enhanced.

10 Claims, 4 Drawing Figures