

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.

4,335,364

June 15, 1982

precious alloy (Invar or Super Invar) forced into the hollow room of a thick support made of less precious material (aluminum).

Transition from a Coaxial Cable to a Multipole Plug-In Connector

4 Claims, 3 Drawing Figures

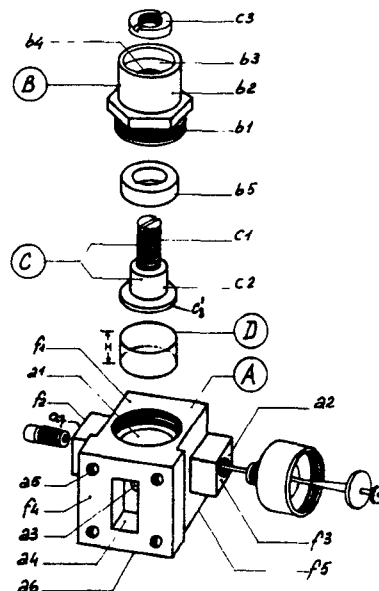
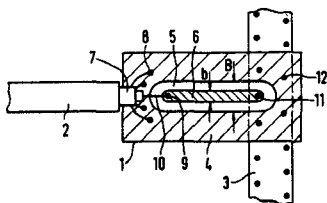
Inventors: Johannes Schmitz; Roland Röhrbein.

Assignee: Licentia Patent-Verwaltungs-GmbH.

Filed: Dec. 1, 1980.

Abstract—A transition piece for establishing a transition between a coaxial cable having an inner conductor and an outer conductor and a plug-in connector component having a plurality of terminals disposed adjacent one another, composed of a coupling member in the form of a coplanar stripline presenting a conductive strip and a conductive surface surrounding, and electrically insulated from, the conductive strip, the coupling member being connected to the coaxial cable and the connector component in such a manner that the inner conductor of the cable is connected to a point at one end of the conductive strip, the outer conductor of the cable is connected to the conductive surface, a first terminal of the connector component is connected to a point at the end of the conductive strip opposite its one end, and at least one terminal adjacent the first terminal is connected to the conductive surface.

4 Claims, 3 Drawing Figures



4,335,365

June 15, 1982

Temperature Stabilized and Frequency Adjustable Microwave Cavities

Inventor: Enzo Pome'.

Assignee: Telettra-Telefonica Electronica e Radio S.p.A.

Filed: Sept. 25, 1980.

Abstract—The invention concerns temperature stabilized resonant microwave cavities not requiring hermetic sealing and easy to be frequency adjusted, which essentially consist of a hollow body, a tuning screw, a plug and auxiliary lateral devices for coupling to the diode as well as of a termination, and are characterized in that the hollow body is filled with amorphous quartz. This hollow body consists preferably of an internal thin cartridge or vest made of

4,337,995

July 6, 1982

Switch for Optical Transmission Lines

Inventors: Toshiki P. Tanaka, Minoru Maeda, Satoshi Aoki, Shoji Yamada.

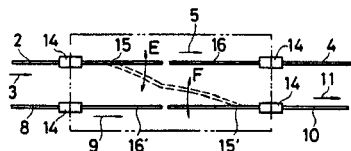
Assignees: Hitachi, Ltd.; Hitachi Cable, Ltd.

Filed: Nov. 8, 1979.

Abstract—Disclosed is an optical switch for changing over the mode connecting two optical transmission lines comprising two optical fibers directly to each other and the mode connecting an optical communication device between the two transmission lines. In this optical switch, in order to reduce the insertion loss, first, second, third and fourth optical fibers, each having an optical connector attached to one end, are attached to a substrate so that at least parts of the respective optical fibers are fixed to the substrate, and the ends of the first and second fibers are arranged on the substrate movably so that the end face of the first optical fiber confronts the end faces of the second

and third optical fibers and the end face of the second optical fiber confronts the end faces of the first and fourth optical fibers.

13 Claims, 10 Drawing Figures



4,338,595

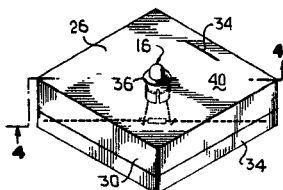
July 6, 1982

Microwave Leakage Detector

Inventor: Daniel D. Newman.
Assignee: Microwave Radiation Detector Corporation.
Filed: Sept. 9, 1980.

Abstract—A portable microwave leakage detector comprises a dipole antenna and a hot carrier diode connected in parallel with a light emitting diode, the circuit incorporating minimum solder joints and affording maximum sensitivity without moving parts such that the detector circuit does not decay with time. The dipole antenna is oriented diagonally in a detector case so that the user of the detector automatically presents the antenna to the radiating microwave field (or leakage field) at a maximum receiving attitude with respect to the field. The detector can be utilized to determine whether a microwave oven or any other device is leaking radiation beyond limits imposed by the Food and Drug Administration.

10 Claims, 7 Drawing Figures



4,345,220

Aug. 17, 1982

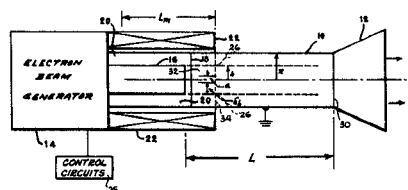
High Power Microwave Generator Using Relativistic Electron Beam in Waveguide Drift Tube

Inventor: Donald J. Sullivan.
Assignee: The United States of America as represented by the Secretary of the Air Force.
Filed: Feb. 12, 1980.

Abstract—Coherent microwave radiation is generated in and transmitted through a waveguide/drift tube by means of an injected relativistic electron

beam the parameters of which, in combination with the waveguide/drift tube geometry and dimensions effect a virtual cathode oscillation condition within the waveguide/drift tube. Tuning of the device is accomplished by manipulation of the relativistic electron beam parameters and/or waveguide/drift tube physical dimensions.

1 Claim, 1 Drawing Figure



4,344,048

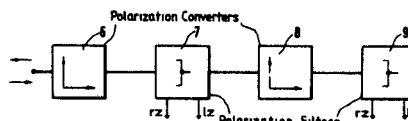
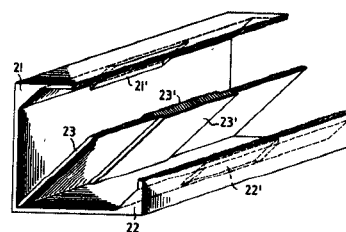
Aug. 10, 1982

Four-Port Network for Separating Two Signals Comprised of Doubly Polarized Frequency Bands

Inventor: Günter Mörz.
Assignee: Licentia Patent-Verwaltungs-GmbH.
Filed: Aug. 11, 1980.

Abstract—A four-port network for separating signals comprised of two doubly polarized frequency bands for an antenna feeder system in directional or satellite radio operation, wherein a first polarization converter for converting linear polarization to circular polarization, and vice versa, is designed for the lowest inherent ellipticity in the lower frequency band and is connected ahead of a symmetric polarization filter for the lower frequency band, and a second polarization converter which compensates the remaining ellipticity in the upper frequency band is connected between the symmetrical polarization filter and a further polarization filter for the upper frequency band. The second polarization converter for compensating the remaining ellipticity in the upper frequency band includes two different types of wavecoupling means with the first wavecoupling means reducing the frequency dependence of the remaining ellipticity but simultaneously increasing the amount of the remaining ellipticity and the other wavecoupling means having the resulting effect that the amount of the remaining ellipticity and additionally its frequency dependence are reduced to a minimum.

5 Claims, 8 Drawing Figures



4,344,047

Aug. 10, 1982 4,342,010

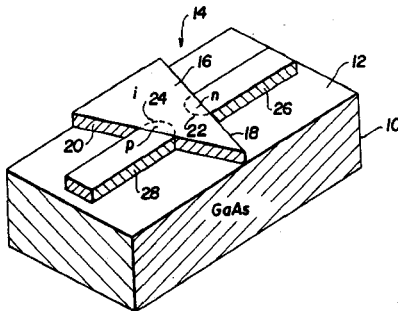
July 27, 1982

Millimeter-Wave Power Limiter

Inventor: Samuel Dixon, Jr.
 Assignee: The United States of America as
 represented by the Secretary of the
 Army.
 Filed: Feb. 12, 1981.

Abstract—Disclosed is a millimeter wave bulk effect RF power limiter consisting of a planar PIN diode formed on a gallium arsenide (GaAs) substrate which also comprises the waveguide structure for RF energy in the 60-300 GHz range. The PIN diode is comprised of a wedge of intrinsic type semiconductor material formed across the top surface of the substrate and having mutually opposing regions of *p* and *n* type semiconductor material fabricated in the side edges of the wedge to which is attached planar beam leads. With suitable electrical operating potentials applied to the PIN diode avalanche breakdown occurs at a critical RF power level which acts to limit the flow of RF energy flow in the structure past the location of the PIN diode. Such a structure permits the device to be integrated into the front end sections of receivers utilized in communications, missile guidance and radar systems operable in the millimeter and sub-millimeter frequency range.

13 Claims, 5 Drawing Figures

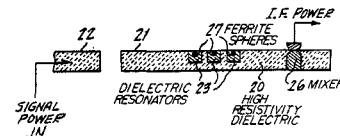


Dielectric Waveguide Power Limiter

Inventors: Samuel Dixon, Jr., Harold Jacobs.
 Assignee: The United States of America as
 represented by the Secretary of the
 Army.
 Filed: May 27, 1980.

Abstract—A dielectric waveguide power limiter for a self-oscillating mixer operating on millimeter-wave frequencies. The limiter includes a high resistivity silicon dielectric waveguide and a Gunn oscillator. A plurality of dielectric resonators each including a high uniaxial anisotropy ferrite sphere embedded therein are positioned between the power input end of the waveguide and the Gunn oscillator.

14 Claims, 6 Drawing Figures



4,342,015

July 27, 1982

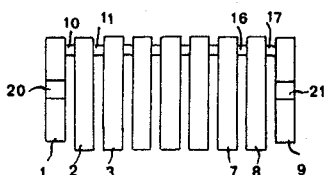
Electromechanical Bandpass Filters

Inventor: Herbert Ernyei.
 Assignee: Lignes Telegraphiques et
 Telephoniques.
 Filed: July 17, 1980.

Abstract—An electromechanical band pass filter includes a plurality of cells in cascade. Each cell comprises two parallel cylindrical bars forming longitudinally vibrating resonators and a flexurally vibrating cylindrical coupler connected between the two resonators. The cell of rank *i* is dimensioned such that one of its relative limiting frequencies is linked with the frequency of a cell for an electrical low-pass filter by the relationship:

$$f_i^* = \frac{A}{\sin \alpha_{ci} + \sinh \alpha_{ci}} \left[\frac{\tan \alpha_{ri}}{\sqrt{\Omega L_i}} (1 - \cos \alpha_{ci} \cosh \alpha_{ci}) - 2.539(\Omega L_i - 1)(\sin \alpha_{ci} \cosh \alpha_{ci} + \cos \alpha_{ci} \sinh \alpha_{ci}) \right]$$

4 Claims, 4 Drawing Figures



4,340,975

July 20, 1982

Microwave Mixing Circuit and a VHF-UHF Tuner Having the Mixing Circuit

Inventors: Hiroshi Onishi, Sadahiko Yamashita.
 Assignee: Matsushita Electric Industrial
 Company, Limited.
 Filed: Oct. 8, 1980.

Abstract—In a double superheterodyne tuner for receiving TV channel signals, a frequency in a range defined between 2520 and 2700 MHz is selected as the first intermediate frequency, while the first intermediate frequency is obtained by subtracting a desired channel frequency from a first local oscillator frequency. The tuner comprises first and second mixing circuits respectively used for effecting frequency conversion, where each of these mixing circuits has parallel coupled lines so that each mixing circuit operates as a balance-to-unbalance transformer. The second mixing circuit further comprises a short-circuit line placed between the parallel coupled lines. The tuner also comprises a band pass filter having a band width less than 5 MHz, which selectively transmits the first intermediate frequency signal from the first mixing circuit.

29 Claims, 21 Drawing Figures

