

Patent Abstracts

4,249,147

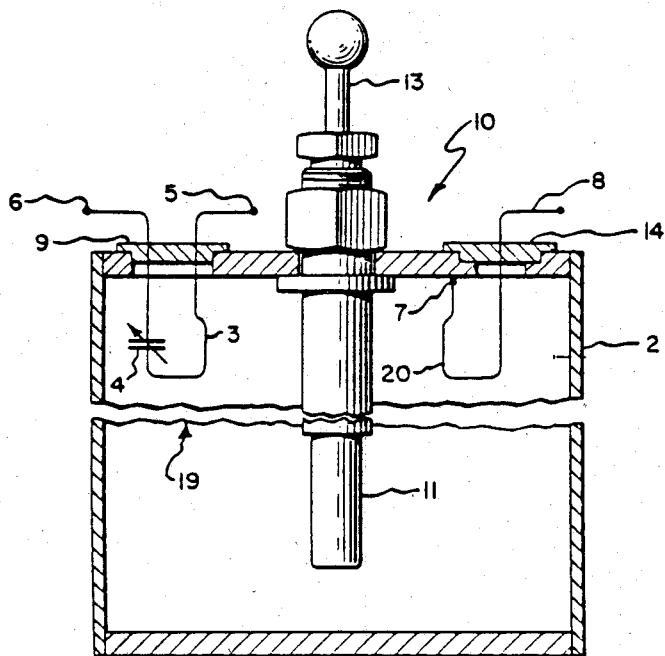
Feb. 3, 1981

Cavity Filter and Multi-Coupler Utilizing Same

Inventor: Daniel P. Kaegbein.
 Assignee: TX RX Systems Inc.
 Filed: Feb. 21, 1979.

Abstract—An R. F. resonant cavity filter for connection in a transmission line and multicouplers utilizing same, said filter adapted to pass only signals of a predetermined frequency into and out of a branch transmission line, to block signals of said predetermined frequency from propagating down said transmission line in one direction but not the other, and to pass all other signals substantially undisturbed.

41 Claims, 12 Drawing Figures



4,249,134

Feb. 3, 1981

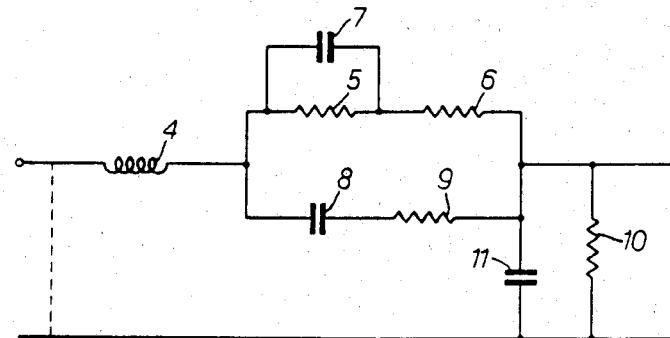
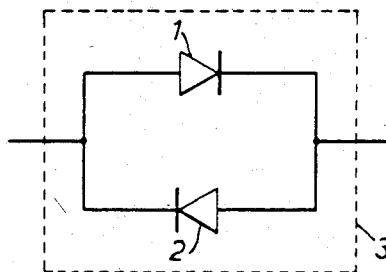
Radio Frequency Detectors

Inventor: William F. Stacey.
 Assignee: AEI Semiconductors Limited.
 Filed: Dec. 27, 1978.

Abstract—A radio frequency detector uses a Schottky barrier diode as the detection element. In order to protect this diode against damage caused by the application of excessive power, a NIP diode is connected in shunt with the

Schottky barrier diode and is positioned very closely adjacent to it with the connecting leads being as short as possible. The NIP diode has a very low internal capacitance, which is compatible with the operation of the Schottky barrier diode as a radio frequency detector.

7 Claims, 4 Drawing Figures



4,249,144

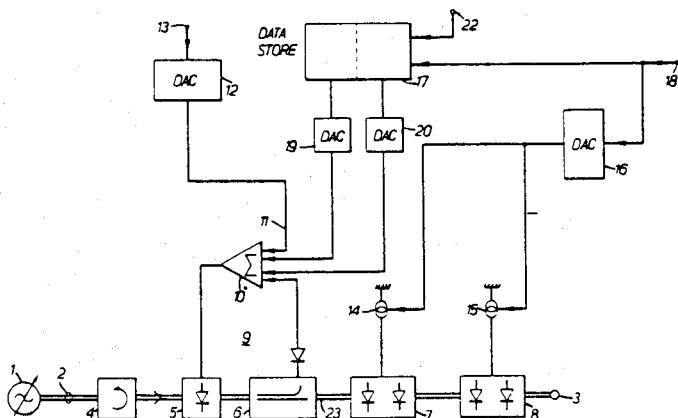
Feb. 3, 1981

Controllable Microwave Attenuator

Inventors: Geoffrey J. Hurst; Andrew W. Butler.
 Assignee: Marconi Instruments Limited.
 Filed: Dec. 4, 1979.

Abstract—A microwave attenuator consists of a plurality of variable attenuation PIN diodes connected in a serial path. At least one of the diodes forms part of a feed-back loop so that the attenuation level it provides can be adjusted to correspond with a reference signal. The effective level of the reference signal is modified in accordance with correction factors, by means of which non-linearities in the performance of the remaining diodes can be compensated.

7 Claims, 2 Drawing Figures



4,249,148

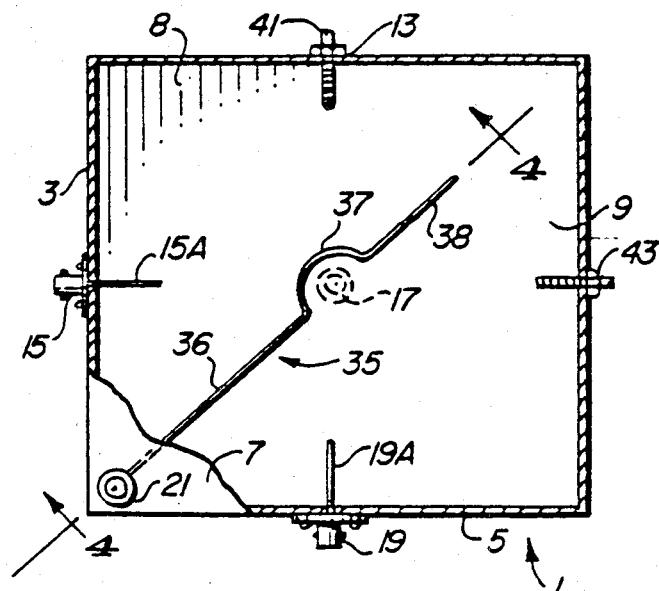
Feb. 3, 1981

Cubical Multiple Cavity Filter and Combiner

Inventor: Ronald E. Jachowski.
 Assignee: Decibel Products, Inc.
 Filed: Mar. 19, 1979.

Abstract—A cubical device includes six square sides connected to form a cube. Each side has an electrically conductive inner surface electrically connected to the other inner surfaces. A plurality of electric field probes attached to coaxial connectors centrally mounted on respectively perpendicular sides of the cube extend into the volume bounded by the cube. In one embodiment of the invention, three opposing pairs of electric field probes extend into the volume from opposite sides of the cube. The electrical cube then functions as three independent bandpass filters, each having a "Q" determined by the volume. In another embodiment of the invention, an output probe extends into the cavity at a predetermined angle and senses the standing wave patterns produced in response to the electric field probes, whereby the cubical apparatus functions as a bidirectional combiner for up to three channels. In a further embodiment of the invention, one or more grounded conductive loops extend into the volume to produce interference between standing wave patterns therein, effecting internal coupling which causes the cubical device to function as one of a variety of composite filters, such as a double tuned filter or a composite bandpass filter with one or more notches in its output characteristic.

25 Claims, 10 Drawing Figures



4,249,149

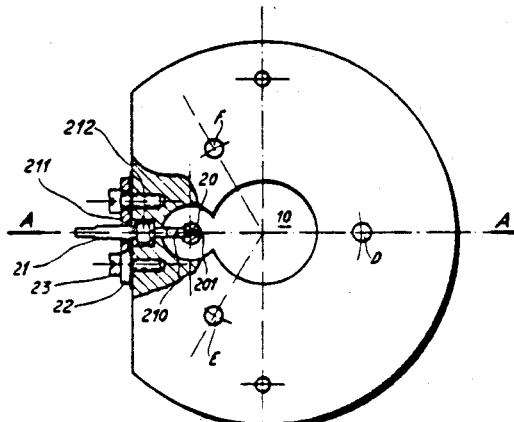
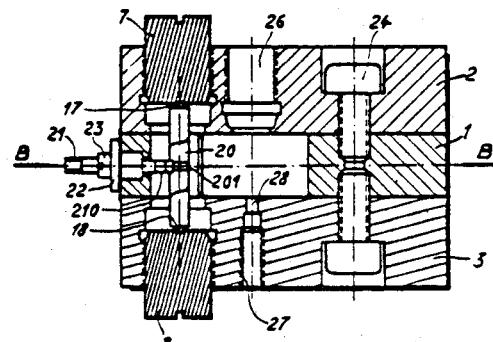
Feb. 3, 1981

Ultra High-Frequency Circuit with Resonant Cavity Equipped with Pairs of Peripheral Diodes

Inventors: Felix Diamand; Guy Bourrabier; Robert Antoine.
 Assignee: Thomson-CSF.
 Filed: Apr. 30, 1979.

Abstract—A circuit capable of providing the negative resistance heart of oscillators or amplifiers in the 5-20 Gc/s frequency band, comprising a central resonant cavity and one or several peripheral exciting chambers, each containing a push-pull arrangement of two diodes for example three pairs of diodes in chambers arranged at 120° from one another on a circle concentric to the central cavity. The diodes are located at the bottoms of cylindrical exciting chambers communicating with the central chamber through holes situated at the center of each push-pull arrangement. Each pair of diodes is maintained and polarized by a metallic bar which plays with the walls of the exciting chamber, the role of an impedance transformer between the diodes and the central cavity. The metallic bar is maintained by a polarization rod penetrating the chamber through an insulating passage.

7 Claims, 7 Drawing Figures



4,249,258

Feb. 3, 1981

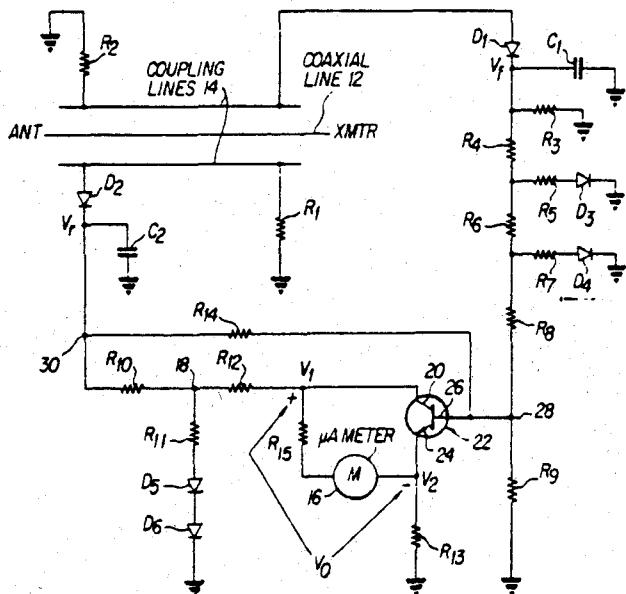
Self-Calibrating Voltage Standing-Wave Ratio Meter System

Inventor: Tyson S. Craven.
 Assignee: Georgia Tech Research Institute.
 Filed: Nov. 21, 1979.

Abstract—A circuit for use in connection with a meter for measuring the voltage standing-wave ratio (VSWR) along a transmission line wherein forward and reflected voltages in the transmission line are coupled off and detected by

two respective diodes. Calibration of the two diode detected forward and reverse voltages occurs in a series of resistor-diode combinations before they are fed onto the base and collector, respectively, of a transistor. A meter connected between the collector and emitter of the transistor measures the voltage drop across the transistor and this value is proportional to the voltage standing-wave ratio.

9 Claims, 1 Drawing Figure



4,249,262

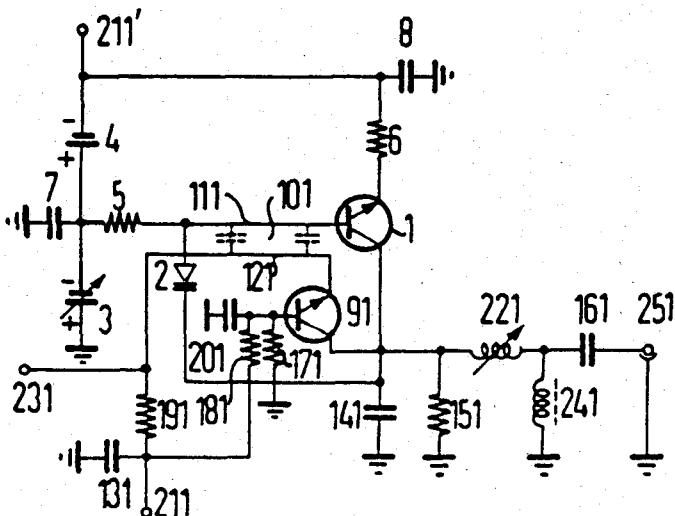
Feb. 3, 1981

Tunable Microwave Oscillator

Inventor: Josef Fenk.
Assignee: Siemens Aktiengesellschaft.
Filed: Oct. 25, 1978.

Abstract—A tunable microwave oscillator including a transistor with a tuning diode which form an oscillating circuit particularly for use in television tuners and which does not require an inductor. A novel combination of an oscillator and mixer is also provided and the oscillator and mixer are designed to cover broad tuning ranges.

7 Claims, 10 Drawing Figures



4,249,263

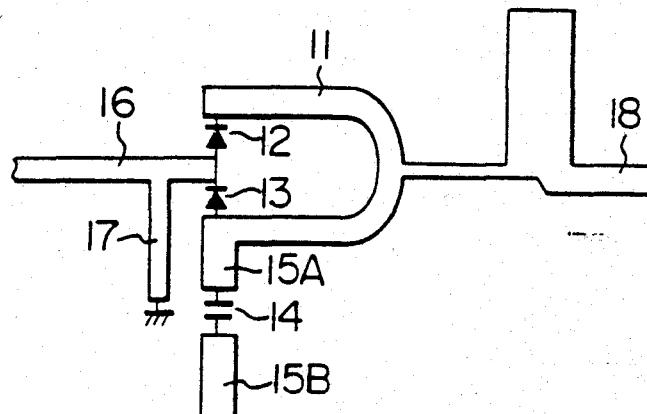
Feb. 3, 1981

Mixer Circuit

Inventors: Keiro Shinkawa; Chuichi Sodeyama.
Assignee: Hitachi, Ltd.
Filed: Nov. 2, 1979

Abstract—A mixer circuit formed of a micro strip line for converting an input signal in SHF band into an intermediate frequency signal in UHF band is disclosed which includes an arch-shaped half-wavelength line having a length equal to one half of the wavelength of the input signal and a series circuit of two diodes connected between both ends of the half-wavelength line, and in which the input signal and a local oscillation signal are applied respectively to the junction point of the diodes and one end of the half-wavelength line, and the intermediate frequency signal is delivered from a given point on the half-wavelength line.

9 Claims, 16 Drawing Figures



4,250,475

Feb. 10, 1981

Adjustable Passband Filter

Inventor: Alfred Schwarzmann.
Assignee: RCA Corporation.
Filed: May 1, 1979.

Abstract—An adjustable passband filter comprises at least one reentrant section in shunt with a transmission line, which section can be electronically switched between different conditions. The reentrant section, when in at least one condition acts, to reduce the band of frequencies passed by the transmission line by increasing the effective capacitance of the filter and when in another condition, operates as an open circuit, whereby the filter exhibits a broader passband.

10 Claims, 4 Drawing Figures

