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.

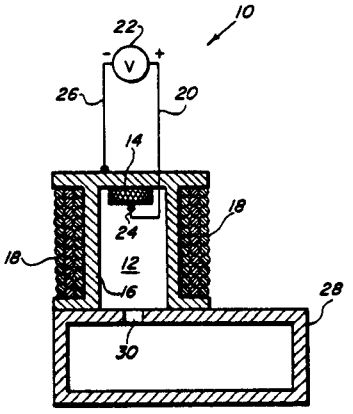
4,574,259 Mar. 4, 1986

High Switching Speed Electrically Turned Microwave Magnetic Resonance Devices

Inventors: George T. Rado, Carmine Vittoria, and James M. Ferrari.
Assignee: The United States of America as represented by the Secretary of the Navy.
Filed: Dec. 20, 1984.

Abstract—An apparatus for changing the phase of a microwave signal comprising: a sample that exhibits the magneto-electric effect; a metal enclosure loaded with said sample; a voltage source; a feed electrode and a ground electrode attached to said sample and to said voltage source so that a voltage difference is created across said sample by said voltage source, said feed electrode connecting said voltage source and said sample by passing through said; a coupling slot in said enclosure that enables microwaves to enter into said enclosure and leave said enclosure after the microwave has been phase shifted and a means for producing a magnetic field inside the metal enclosure.

14 Claims, 3 Drawing Figures



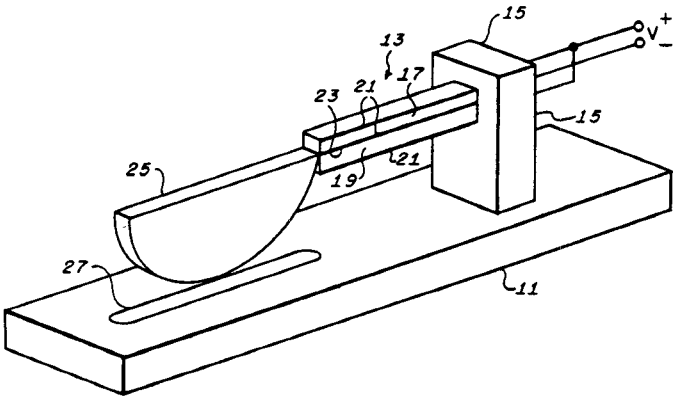
4,575,697 Mar. 11, 1986

Electrically Controlled Phase Shifter

Inventors: Basrur R. Rao and Chris J. Daigle.
Assignee: Sperry Corporation.
Filed: Jun. 18, 1984.

Abstract—A microwave phase shifter for use in waveguide transmission line employs a piezoelectric cantilevered bimorph member mounted on the waveguide and a thin wafer of dielectric material mounted on the free end of the cantilever above a slot in the waveguide. Voltages applied to the bimorph member cause this member to distort so as to insert the wafer into the waveguide slot and alter the phase of the microwave signal being transmitted.

9 Claims, 3 Drawing Figures



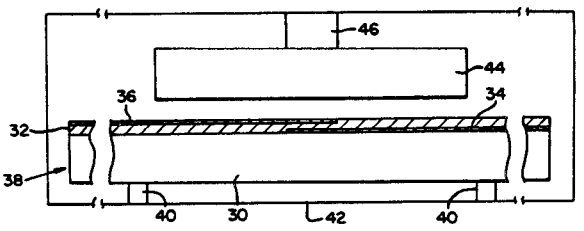
4,575,699 Mar. 11, 1986

Dielectric Resonator Frequency Selective Network

Inventor: Larry R. Lockwood.
Assignee: Tektronix, Inc.
Filed: Nov. 23, 1984.

Abstract—A dielectric resonator frequency selective network. A frequency selective network for microwave circuits is provided whereby a dielectric resonator is coupled to associated circuitry by input and output coupling loops formed in a single circuit board. The two loops are closely spaced, but partially overlapping at a position such that they are substantially decoupled from one another. A dielectric resonator is placed adjacent one of the loops so as to couple one loop to the other through the resonator and to cause the resonator to operate in its dominant mode. The circuit board is constructed by forming conductors separated by insulating material on a ceramic substrate.

11 Claims, 8 Drawing Figures



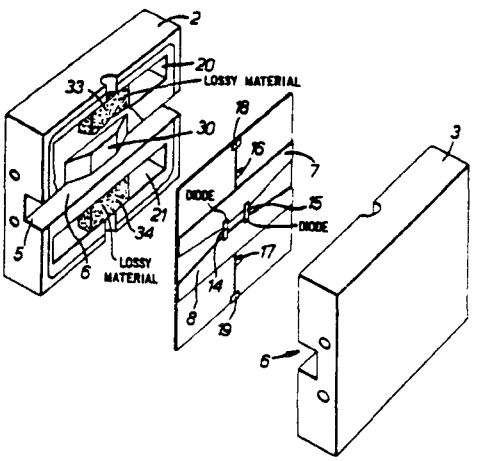
4,575,701 Mar. 11, 1986

Microwave Switch

Inventor: Robert B. Greed.
Assignee: The Marconi Company Ltd.
Filed: May 27, 1983.

Abstract—An improved microwave switch incorporating a fin line structure is described. Microwave switches incorporating finline structures enable microwave energy to be passed to a load or reflected back to the source, by controlling the conductance state of diodes mounted on the fin line structure. The present invention enables the electrical performance of such switches to be greatly improved. The height of a waveguide channel in the vicinity of the fin line structure is very greatly reduced thereby forcing a waveguide mode of propagation into a slot line so that the fin line structure receives substantially all of the energy supplied to the switch. Higher order modes which are generated at the fin line structure are attenuated by lossy material positioned in choke cavities mounted on either side of the fin line structure.

4 Claims, 4 Drawing Figures



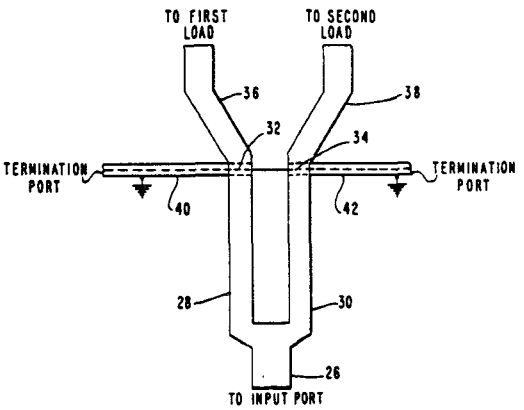
4,577,167 Mar. 18, 1986

Microstrip Line Branching Coupler Having Coaxial Coupled Remote Termination

Inventor: Gary E. Evans.
Assignee: Westinghouse Electric Corp.
Filed: Dec. 3, 1982.

Abstract—A strip transmission line power divider having an isolated port remote from the output ports is disclosed. Power division is provided by a two branch strip transmission line. A coaxial transmission line coupled between the output ports of the divider is coupled to an isolated port where terminating resistors of any convenient power rating may be used.

9 Claims, 7 Drawing Figures



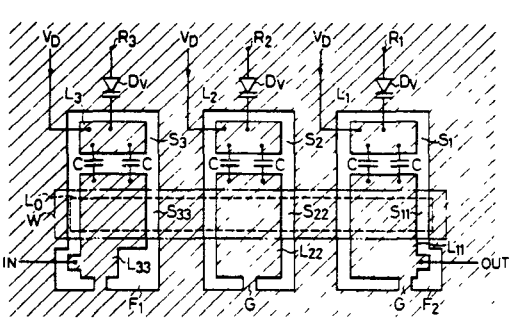
4,577,170 Mar. 18, 1986

Variable Tuning Filter in High Frequency Circuit

Inventor: Isao Hayashi.
Assignee: Kyocera Corporation.
Filed: Jan. 31, 1985.

Abstract—A high frequency tuning filter having a grounding conductive layer on one side of a dielectric substrate and figure eight (8)-shaped resonance electrodes of an electrically conductive film layer on the other side is improved into a variable tuning filter for a high frequency circuit which has a plurality of resonators surrounded by figure 8-shaped grooves respectively which are each formed in the electrically conductive layer in such a manner that a portion of an electrically conductive layer small in width remains in the figure 8-shaped groove and the electrically conductive layer remains between the adjacent resonators, and which also has a region formed by removing a part of the grounding conductive layer over the resonators.

2 Claims, 3 Drawing Figures



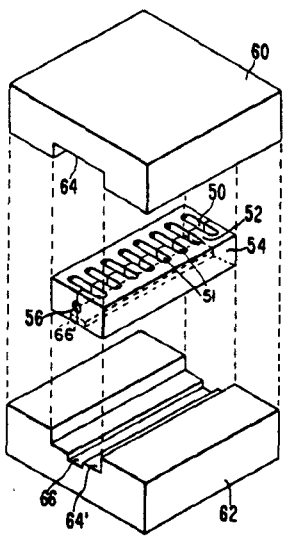
4,578,620 Mar. 25, 1986

Slow-Wave Circuit for a Traveling Wave Tube

Inventors: Bertram G. James, Frank C. Dinapoli, and P. Hayes.
Assignee: Varian Associates, Inc.
Filed: Jun. 29, 1984.

Abstract—A coupled-cavity slow-wave circuit for a millimeter-wave TWT is formed by forming cavities through a metallic bar or half-cavities in a pair of comb-shaped bars. The ends of the cavities are covered by cover members, one of which has a longitudinal groove to form "in line" coupling apertures between cavities.

5 Claims, 7 Drawing Figures



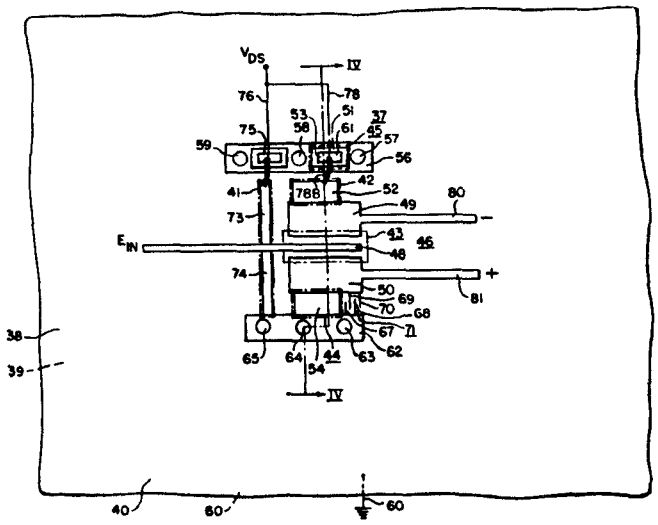
4,578,629 Mar. 25, 1986

Monolithic Microwave "Split Load" Phase Inverter for Push-Pull Monolithic FET Amplifier Circuits

Inventors: James E. Degenford and Daniel C. Boire.
Assignee: Westinghouse Electric Corp.
Filed: Sept. 9, 1983.

Abstract—A phase inverter generates two signals 180° out-of-phase at microwave frequencies in response to an input microwave signal incorporating a semiconductor substrate such as gallium arsenide, a transistor having a drain, source and gate electrode, an ion-implanted resistor coupled between the drain electrode and a voltage source, a second ion-implanted resistor coupled between the source electrode and ground potential, a compensation network such as a capacitor coupled between the source electrode and ground potential, and a biasing network for establishing a bias voltage on the gate electrode. The phase inverter which may be monolithic overcomes the problem of the size of quarter wavelength slot lines to generate signals with 180° phase relationship.

9 Claims, 4 Drawing Figures



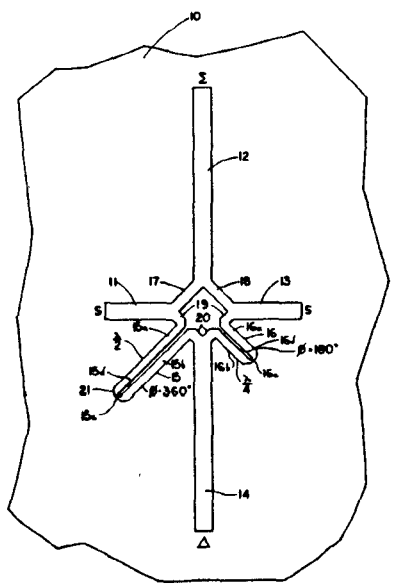
4,578,652 Mar. 25, 1986

Broad-Band Four-Port TEM Mode 180° Printed Circuit Microwave Hybrid

Inventor: William G. Sterns.
Assignee: ITT Corporation.
Filed: May 14, 1984.

Abstract—A broad-band TEM mode four-port hybrid in a single-level microwave circuit in a transmission line medium selected from among the stripline, microstrip, airstrip, etc. media. The device employs coupled strip all-pass filter elements to provide a hybrid wherein isolation to the cross ports, power division to the coupled ports, and the 0° to 180° output phase relationships are independent of frequency over substantial frequency bandwidths.

22 Claims, 5 Drawing Figures



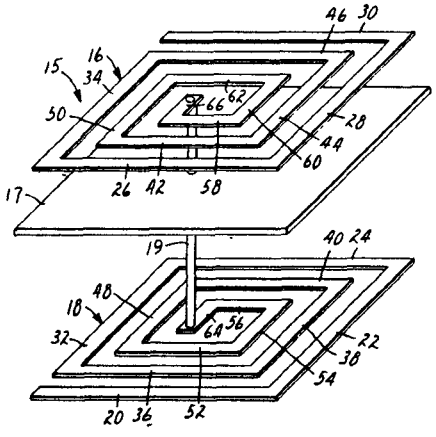
4,578,654 Mar. 25, 1986

Distributed Capacitance *LC* Resonant Circuit

Inventor: William C. Tait.
Assignee: Minnesota Mining and Manufacturing Company.
Filed: Nov. 16, 1983.

Abstract—A tuned resonant circuit including inductive and capacitive components useful as a marker in electronic marker surveillance systems, comprising a laminate of a dielectric and conductive-multi-turn spirals on opposing surfaces of the dielectric, wherein the capacitive component is formed as a result of distributed capacitance between the opposed spirals, and wherein an electrical connection is provided between predetermined opposing portions of the respective spirals.

10 Claims, 12 Drawing Figures



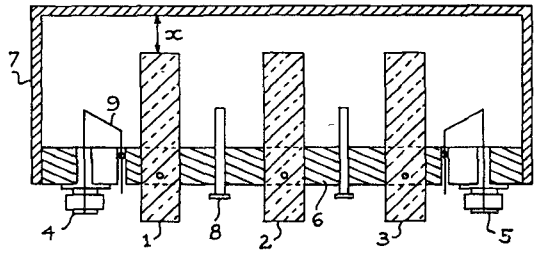
4,578,655 Mar. 25, 1986

Tunable Ultra-High Frequency Filter with Mode TM010 Dielectric Resonators

Inventors: Jean-Luc Etienne and Jean-Claude Cruchon.
Assignee: Thomson-CSF.
Filed: Jan. 10, 1984.

Abstract—A filter comprising a metal case having a metal base and a lid forming a guide of any section but under cutoff, that is to say which does not allow guided propagation. Cylindrical dielectric resonators are in contact with the metal securing base and the resonators resonate then in the TM010 mode. For frequency tuning of the filter, the distance between the bottom of the lid and the ends of the dielectric resonators supported by the base is variable. The invention applies more especially to tunable band-pass filters.

7 Claims, 5 Drawing Figures



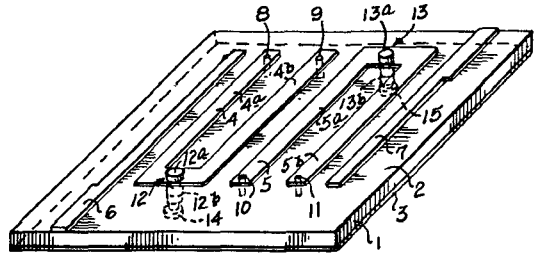
4,578,656 Mar. 25, 1986

Microwave Microstrip Filter with U-Shaped Linear Resonators Having Centrally Located Capacitors Coupled to Ground

Inventors: Clément-Francois Lacour and Patrick Janer.
Assignee: Thomson-CSF.
Filed: Jan. 5, 1984.

Abstract—A microwave filter comprising linear resonators makes use of proximity-coupled conductors situated on the first surface of a substrate of dielectric material, whose second surface parallel to the first surface is metallized to form a ground plane, in order to form the resonators. The extremities of each conductor are connected to the earth plane and the center of each conductor is equally connected to the earth plane via at least one capacitor.

9 Claims, 6 Drawing Figures



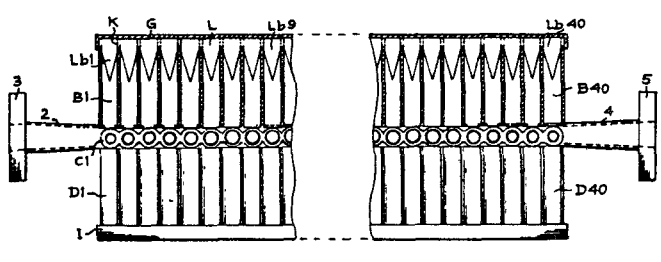
4,578,657 Mar. 25, 1986

Filter of the Type Consisting of a Primary Waveguide Having Lateral Secondary Guides

Inventors Jean-Claude Cruchon and Jean-Denis Schubert.
Assignee: Alcatel Thomas Faisceaux Hertziens.
Filed: May 30, 1985.

Abstract—Filter comprising a rectangular waveguide extended at both ends by rectangular guide-to-rectangular guide couplers and provided with lateral secondary guides. In order to enable the use of cylindrical secondary guides without introducing unwanted resonances, said couplers are given, at their ends, rectangular internal cross sections both the height and width whereof are smaller at the end coupled to the primary guide than at the end remote from the primary guide.

4 Claims, 3 Drawing Figures



4,580,105 Apr. 1, 1986

Automatic Reduction of Intermodulation Products in High-Power Linear Amplifiers

Inventor: Robert E. Myer.
Assignee: AT&T Bell Laboratories.
Filed: Jan. 25, 1985.

Abstract—A distortion simulating pilot is injected at the input of an amplifier which uses feed forward distortion correction. The magnitude of the pilot signal in the amplifier output is used to control a decreasing step size circuit algorithm for adjusting the gain and phase of the feed forward distortion signal to eliminate substantially the pilot signal and the distortion introduced by the amplifier.

8 Claims, 6 Drawing Figures