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[3] H. Matsumura, T. Katsuyama, and T. Suganuma, "Fundamental study of single polarization fibers," presented at the 1980 European Conf. on Optical Communication, York, England, Sept. 1980.
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[6] G. Mur and P. J. Fondse, "Computation of electromagnetic fields guided by a cylindrical inhomogeneity in a homogeneous medium of infinite extent," *Microwaves, Optics and Acoustics*, vol. 3, pp. 224–230, Nov. 1979.
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[8] J. E. Goell, "A circular-harmonic computer analysis of rectangular dielectric waveguides," *Bell Syst. Tech. J.*, vol. 48, pp. 2133–2160, Sept. 1969.

Patent Abstracts

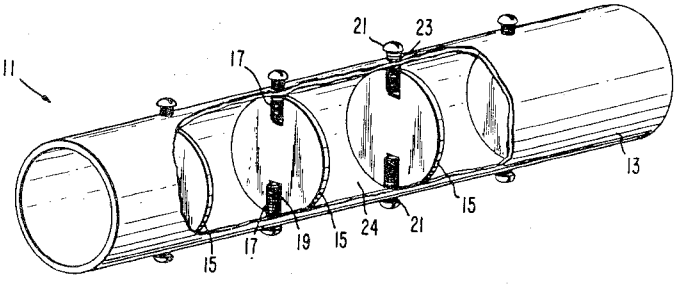
4,251,787 Feb. 17, 1981

Adjustable Coupling Cavity Filter

Inventors: Frederick A. Young; Charles F. Montgomery.
Assignee: Hughes Aircraft Company.
Filed: Mar. 19, 1979.

Abstract—There is herein described a microwave coupled-cavity filter having adjacent cavities defined by spaced end walls disposed in a tubular side wall, the end walls including at least one pair of oppositely disposed coupling apertures extending radially from the side wall toward the center of the associated end wall, and at least one of the associated pair of the coupling apertures containing a tuning screw extending through the side wall for precisely adjusting the coupling between adjacent filter cavities.

7 Claims, 4 Drawing Figures



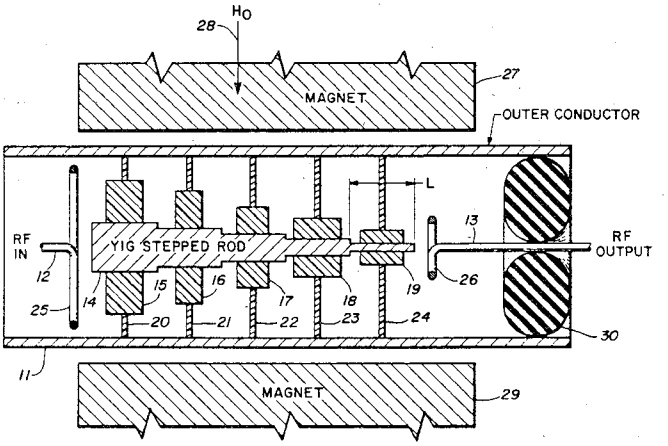
4,251,786 Feb. 17, 1981

Stepped-Rod Ferrite Microwave Limiter Having Wide Dynamic Range and Optimal Frequency Selectivity

Inventors: Harry Goldie; Steven N. Stitzer.
Assignee: The United States of America as represented by the Secretary of the Air Force.
Filed: Jul. 6, 1979.

Abstract—A coaxial line, wide dynamic range, ferrite limiter having optimal frequency selectivity for microwave frequencies is provided by a stepped ferrite rod with disks of varying volumes and dielectric constants controlling the operating frequency and threshold level for each step segment.

5 Claims, 1 Drawing Figure



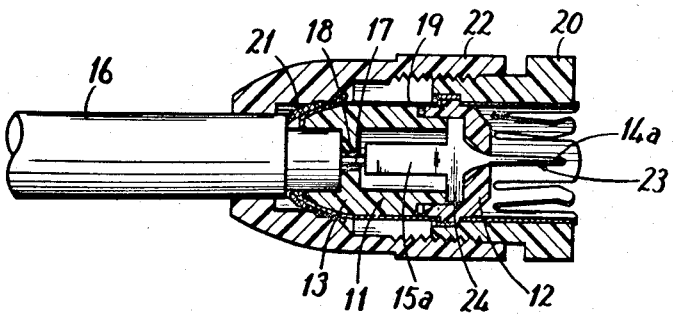
4,249,790 Feb. 10, 1981

Coaxial Cable Connector Plug

Inventors: Katsuo Ito; Bunjiro Murata; Kazunori Yoshimura.
Assignee: Murata Manufacturing Co., Ltd.
Filed: Aug. 15, 1979.

Abstract—A coaxial cable is electrically connected to a connector receptacle by means of a coaxial cable connector plug. The coaxial cable connector plug comprises a clip which acts as an elastic pressure contact connected to a central conductor of the coaxial cable, and a plug pin electrically connected to the clip and adapted to be inserted into a receptacle opening of the connector receptacle. The clip and the plug pin are integrally formed in a single metallic plate. The clip is formed by folding the metallic plate at one end portion, while the plug pin is formed at the other end portion of the metallic plate by curling the same, with engaging portions being formed at the joint portion of the clip and the plug pin and protruding in the direction orthogonal to the longitudinal direction. The clip is housed in an insulating inner casing, while the pin is guided outward extending therefrom. The inner casing is covered with a shield casing. The inner casing is formed with an aperture for insertion of a center conductor of a coaxial cable at the position corresponding to the clip and the shield casing is formed with an aperture for insertion of an inner insulation of the coaxial cable at the corresponding portion. An outer conductor of the coaxial cable is pressure fixed to the side surface of the shield casing.

11 Claims, 14 Drawing Figures



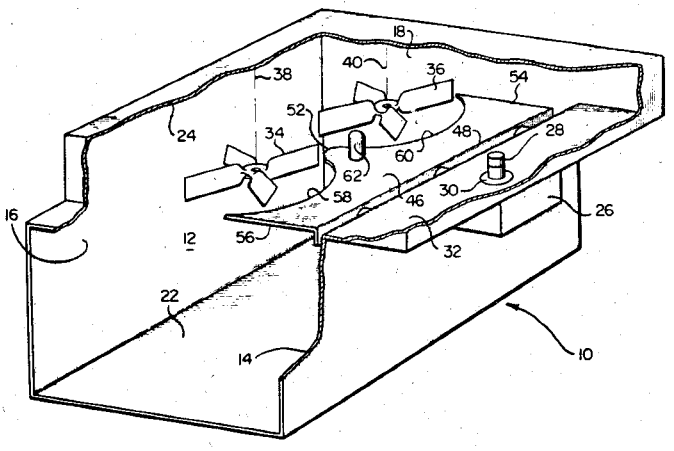
4,249,058 Feb. 3, 1981

Feed System for a Microwave Oven

Inventors: Ronald R. Lentz; Eldon J. Klemp.
Assignee: Litton Systems, Inc.
Filed: Jun. 21, 1979.

Abstract—An improved feed system for a microwave oven, including a shelf mounting a microwave energy source and a shelf extension protruding not more than half-way into the microwave cavity. The shelf extension acts as a microwave launching portion and includes a pair of adjacent cut-out sections with arcuate perimeters matching the rotational arc circumscribed by a pair of rotating stirrer blades. Alternative embodiments of the shelf extension - microwave launching portion are illustrated and described.

11 Claims, 4 Drawing Figures



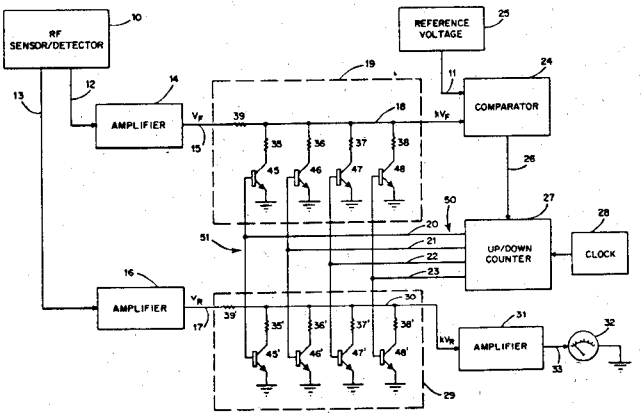
4,249,127 Feb. 3, 1981

Standing Wave Ratio Measuring System

Inventor: Daniel G. Morgan.
Assignee: Tram/Diamond Corporation.
Filed: Dec. 4, 1978.

Abstract—Digitally-controlled tracking impedances and an automatic standing wave ratio measuring instrument employing digitally-controlled tracking impedances to cause a voltage representing the forward voltage in a radio frequency transmission system to track a fixed voltage and to output a voltage with which the standing wave ration can be directly displayed independently of the power characteristics of the transmission system.

6 Claims, 1 Drawing Figure



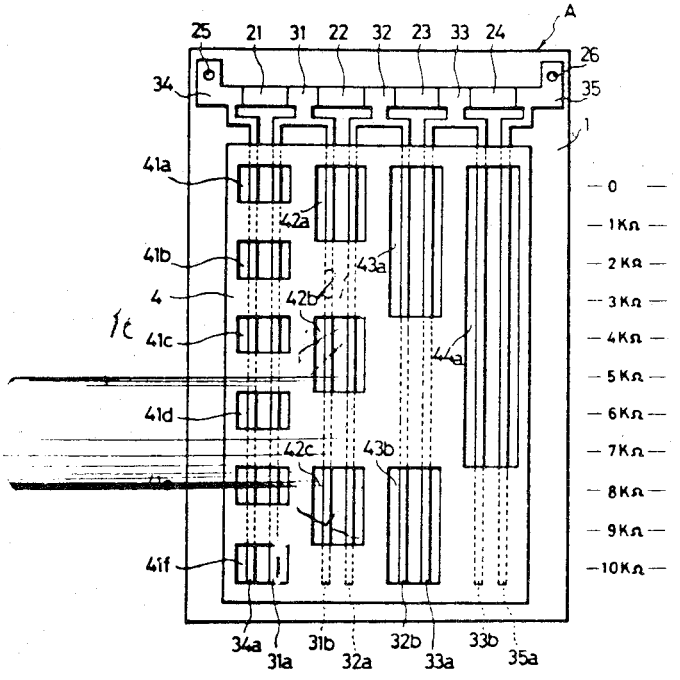
4,249,157 Feb. 3, 1981

Variable Impedance Device

Inventor: Nozomu Sakamoto.
Assignee: Alps Electric Co., Ltd.
Filed: Mar. 30, 1979.

Abstract—A variable impedance device wherein a plurality of elongate conductor leads extend longitudinally from an impedance element carried on an insulating substrate and slide members are moved on the conductor leads, thereby to short-circuit or disconnect predetermined parts of the impedance element so as to obtain various impedance values.

15 Claims, 7 Drawing Figures



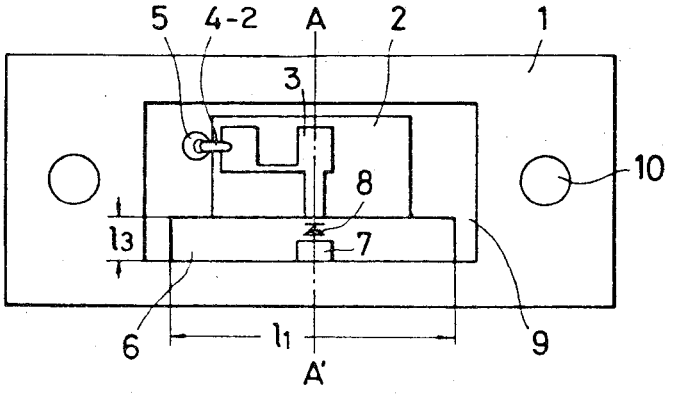
4,255,730 Mar. 10, 1981

Microwave Integrated Circuit Device

Inventors: Kenji Sekine; Yoichi Kaneko.
Assignee: Hitachi, Ltd., Japan.
Filed: Oct. 24, 1978.

Abstract—A microwave integrated circuit device for reception wherein a microwave integrated circuit substrate is mounted on a short-circuited plane of an inner surface of a waveguide, a rectangular groove is provided in the short-circuited plane, and a mixer diode is arranged astride the groove.

2 Claims, 6 Drawing Figures



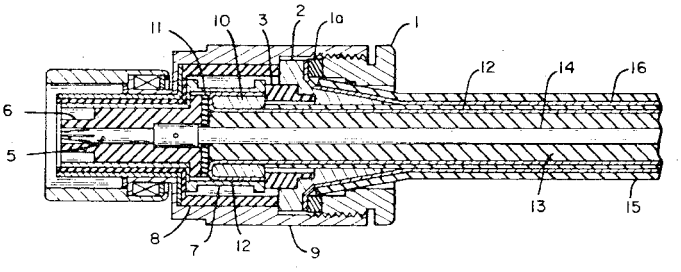
4,255,011 Mar. 10, 1981

Transmission Line Connector

Inventors: William W. Davis; Ernest S. Griffith.
Assignee: Sperry Corporation.
Filed: Apr. 2, 1979.

Abstract—The disclosure teaches an improved connector containing a fold bushing for connecting an inner braid of a transmission line to its associated shield conductor within the connector and for minimizing the reflection signal induced by each connector affixed to the transmission line.

2 Claims, 8 Drawing Figures



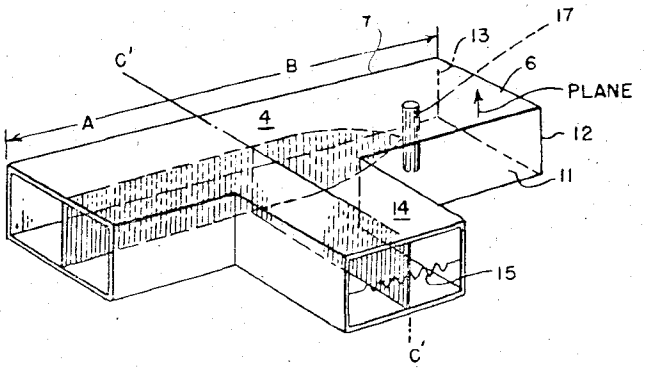
4,255,731 Mar. 10, 1981

Intense Electron Beam Microwave Switch

Inventor: Daniel L. Birx.
Assignee: The United States of America as represented by the Secretary of the Navy.
Filed: Sept. 24, 1979.

Abstract—Microwave energy is coupled into an elongate waveguide having a rectangular main cavity with a lateral branch forming a T section. An intense beam of electrons is generated in the rectangular cavity at a particular location relative to the T to reflect incident microwave energy and produce a standing wave. Quarter wavelength spacing of the beam from the T positions either a wave node or antinode at the T. Preferably, in its 'open' state, accumulated microwave energy is released as a high power output pulse by establishing an antinode at the T. Alternatively, a node at the T produces a normally 'closed' state. In all arrangements, the beam of electrons, which traverses the central portion of the narrow dimension of the rectangular cavity in a direction parallel to the electrical field of its microwave energy, is of sufficient electron density to assure the desired reflection and produce the interference pattern.

12 Claims, 8 Drawing Figures



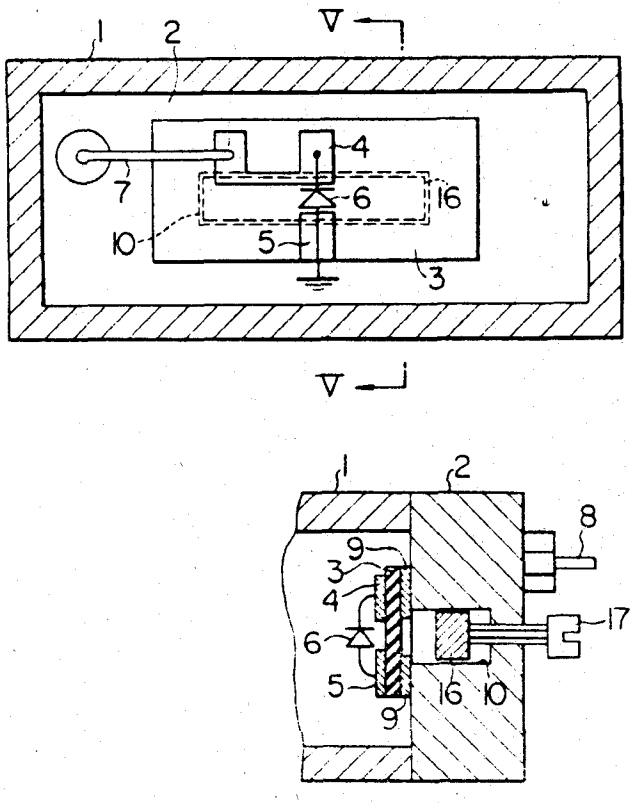
4,251,817 Feb. 17, 1981

Microwave Circuit Device for Transmission/Reception of a Signal

Inventors: Katsuhiro Kimura; Akira Endo; Kenji Sekine; Takahiko Tanigami; Yoichi Kaneko.
Assignee: Hitachi, Ltd.
Filed: Oct. 18, 1979.

Abstract—There is disclosed a microwave integrated circuit device which comprises a waveguide circuit, a short-circuiting member serving as a short-circuiting plane and having a groove in the short-circuiting plane, means for varying the effective dimensions of the groove which have effect on microwave circuit components, a microwave integrated circuit formed on an insulating substrate so disposed as to cover the groove, and a semiconductor element disposed on the microwave integrated circuit to convert the microwave signal in the waveguide circuit into a selected one of a d.c. and a low-frequency, whereby the conversion efficiency may be increased by setting the peak position of the output level characteristic of the device at a desired frequency within a certain frequency band.

8 Claims, 13 Drawing Figures



4,255,729 Mar. 10, 1981

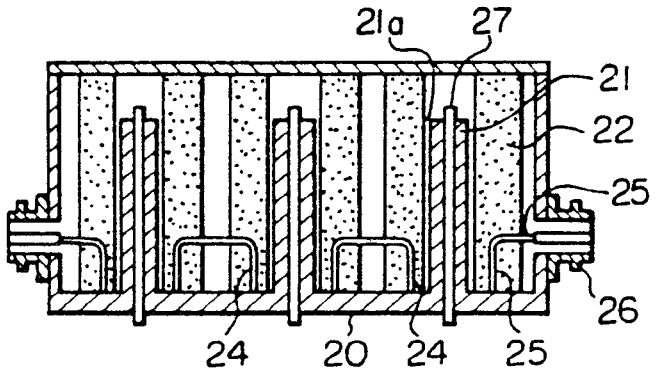
High Frequency Filter

Inventors: Atsushi Fukasawa; Jun Ashiwa; Takuro Sato.
Assignee: Oki Electric Industry Co., Ltd.
Filed: May 9, 1979.

Abstract—A high frequency filter for frequencies higher than the VHF band comprising at least one resonator has been found. Each resonator comprises a conductive housing, an inner conductor one end of which is fixed at the bottom of the housing and the other end of which is free standing, a cylindrical dielectric body surrounding said inner conductor, and the diameter of the

dielectric body is approximately four times as large as that of said inner conductor.

11 Claims, 42 Drawing Figures



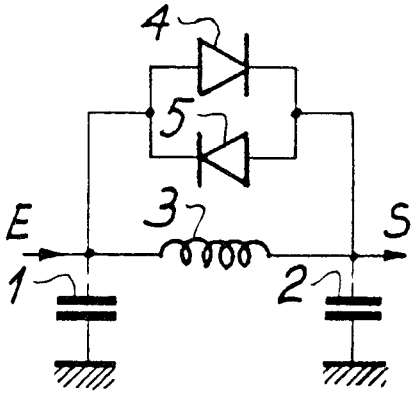
4,255,724 Mar. 10, 1981

Distortion-Corrector for Microwave Tubes

Inventor: Jean-Pierre Bergero.
Assignee: Thomson-CSF.
Filed: Nov. 29, 1978

Abstract—A distortion-corrector which comprises a filter of the low-pass type, of the π or T configuration, and two diodes, in parallel opposition, disposed between the input and output of the filter. This corrector compensates amplitude-and-phase- distortions of the tube associated with the corrector, over a given operational frequency-band of the tube which is below the cut-off frequency of the filter, by compressing weak signals, for which no diode conducts, with respect to strong signals, for which there is at least a start of conduction of one of the diodes and by producing a phase-lead which increases with the input power of the tube.

7 Claims, 4 Drawing Figures



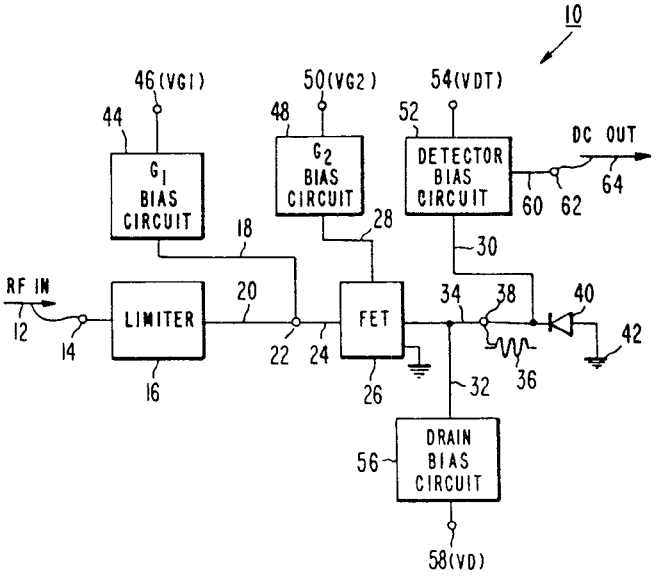
4,255,714 Mar. 10, 1981

GaAs Dual-Gate FET Frequency Discriminator

Inventor: Arye Rosen.
Assignee: RCA Corporation.
Filed: Feb. 21, 1979.

Abstract—A microwave frequency discriminator comprising a dual-gate field effect transistor (FET) amplifier, bias circuits and a detector. The FET is biased to produce an output RF signal within a predetermined frequency bandwidth in response to an input RF signal. A limiter provides a substantially constant power level of the input RF signal to the FET. A detector biasing circuit is used to match electronically the output impedance of the FET to the input impedance of the detector. At such impedance conditions a dc output voltage of the detector varies substantially linearly throughout the frequency bandwidth as a function of the frequency of the input RF signal, approximating the characteristic of a frequency discriminator.

10 Claims, 3 Drawing Figures



4,254,384 Mar. 3, 1981

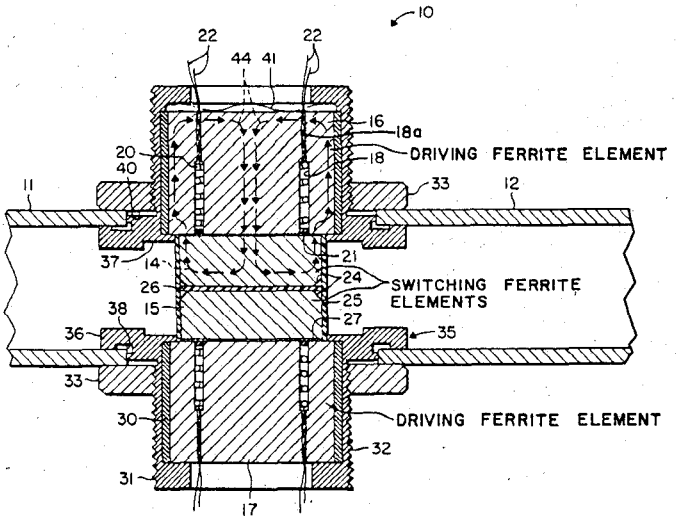
Electronic Waveguide Switch

Inventors: Wieslaw S. Piotrowski; Jorg E. Raue.
Assignee: TRW Inc.
Filed: Nov. 7, 1977.

Abstract—An electronic waveguide switch of a latching type particularly suitable for the microwave and millimeter range. The switch comprises a standard three port housing connected to three waveguides. A switchable

junction ferrite is disposed in the center of the housing, the ferrite being of the latching type. A driver ferrite is disposed outside of the housing. All ferrite elements have a substantially cylindrical shape.

16 Claims, 3 Drawing Figures



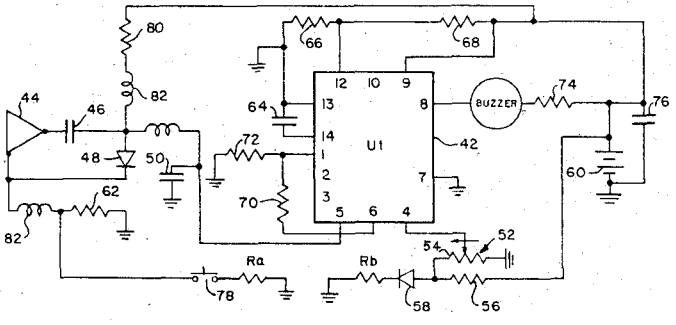
4,253,092 Feb. 24, 1981

Microwave Leakage Detector

Inventor: John F. Connah, Jr.
Filed: Apr. 19, 1979.

Abstract—A microwave leakage detector which can be attached onto a microwave oven, or similar device, and will detect leakage of microwave signal of a predetermined frequency. The leakage detector can be removed from the oven and periodically utilized as a hand held unit for scanning around the oven door, window, and other parts. An alarm will sound when the microwave signal received is above a preset minimum amount. The preset amount can be varied as desired in order to meet safety standards.

2 Claims, 5 Drawing Figures



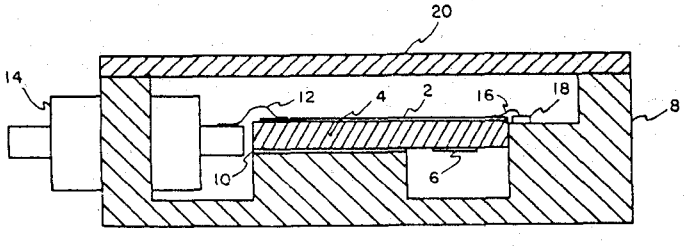
4,254,383 Mar. 3, 1981

Inverted Microstrip Phase Shifter

Inventor: Allen R. Wolfe.
Assignee: General Electric Company.
Filed: Oct. 22, 1979.

Abstract—The inverted microstrip phase shifter consists of a substrate having at least one diode and biasing circuitry connected to one side and at least one center conductor connected to its opposite side. The substrate side containing a center conductor is enclosed within a hollow case so as to form an rf transmission line. The parameters for the biasing circuitry are selected by performing a computer optimization of the chain matrix equivalent expression for the voltage transmission coefficient.

3 Claims, 7 Drawing Figures



4,254,385 Mar. 3, 1981

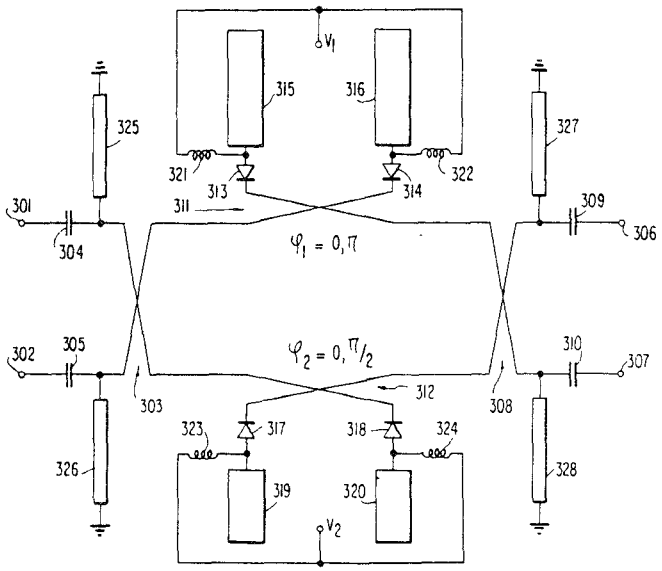
Dimensional (Planar) TDMA/Broad-Cast Microwave Switch Matrix for Switched Satellite Application

Inventors: William H. Childs; Christoph E. Mahle.
Assignee: Communications Satellite Corporation.
Filed: Aug. 31, 1978.

Abstract—A planar microwave switch matrix is composed of three-state phase shifter switches, a planar crossover and switchable 3-dB attenuators. The three-state phase shifter switches are each composed of two planar 3-dB quadrature hybrid couplers interconnected by two switchable phase shifters. The phase shifters are both switchable between zero phase delay and a predetermined phase delay, but the predetermined phase delay is different for each phase shifter. The planar crossover is composed of two cascaded 3-dB quadrature hybrid couplers. The construction of all components of the switch matrix is readily implemented using microwave integrated circuit (MIC) tech-

nology. The switch matrix is intended for use in switched satellite time division multiple access (SS-TDMA) systems but can be remotely configured for broadcast applications.

9 Claims, 7 Drawing Figures



4,254,386 Mar. 3, 1981

Three-way, Equal-Phase Combiner/Divider Network Adapted for External Isolation Resistors

Inventors: Jeffrey T. Nemit; Bobby J. Sanders.
Assignee: International Telephone and Telegraph Corporation
Filed: Oct. 15, 1979.

Abstract—An improved and modified hybrid-ring coupler using distributed, quarter-wave length, tuning element to achieve the proper phasing between signal paths. Extra line lengths have been added to accommodate the addition of a third port so the device is a three-way combiner/divider. Two isolations ports accommodating external isolation resistors are provided. Instrumentation is preferably in microstrip medium.

7 Claims, 12 Drawing Figures