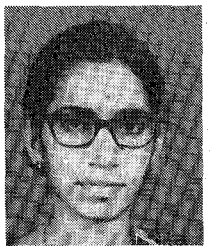


Bharathi Bhat received the B.E. degree in electrical communication engineering and the M.E. degree in electronics from the Indian Institute of Science, Bangalore, India, in 1963 and 1965, respectively. She continued her graduate studies at Harvard University, Cambridge, MA, and received the M.S. and Ph.D. degrees in applied physics in 1967 and 1971, respectively.

From 1971 to 1972, she worked as a Post-Doctoral Research Fellow in the Division of Engineering and Applied Physics, Harvard University. In 1973, she joined the Indian Institute of Technology (I.I.T.), New Delhi, India, as Assistant Professor. Since 1977, she has been a Professor and is currently the Head of the Centre for Applied Research in Electronics (C.A.R.E.) at I.I.T.. She is the Leader of the Microwave Group in C.A.R.E. and has been engaged in research and developmental projects in the areas of microwave- and millimeter-wave integrated circuits and antennas.

Dr. Bhat is a Fellow of the Institution of Electronics and Telecommunication Engineers (IETE), India. She is presently the Honorary Editor of *IETE Journal* for the Electromagnetics Section.

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.

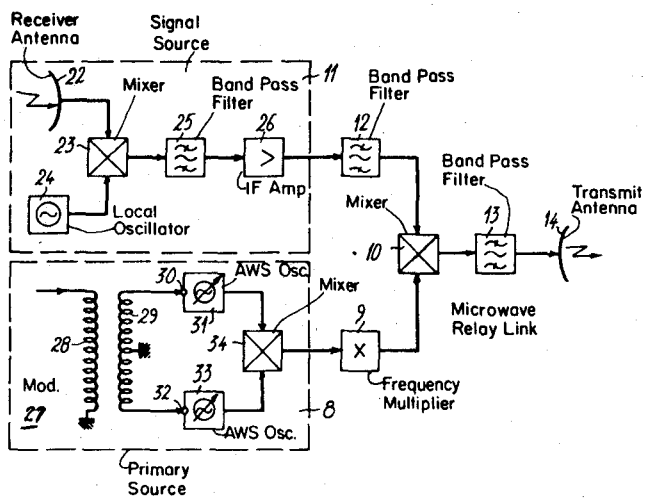
4,271,504 Jun. 2, 1981

Frequency Modulators for Use in Microwave Links

Inventors: Pierre C. Brossard; Jeannine L. G. Henaff.
Filed: Nov. 17, 1978.

Abstract—Frequency modulators for use in microwave link transmission systems include acoustic surface wave (ASW) oscillators. Each frequency modulator comprises two voltage control quadripole ASW oscillators. Control inputs of the two ASW oscillators receive modulation signal in opposite phase. Outputs of ASW oscillators are mixed in a mixer for delivering an IF signal. Thus frequency deviation is larger than in a conventional arrangement. Moreover, surface wave oscillators make it possible to directly insert a service channel signal in a microwave link repeater, without demodulation and modulation operations.

8 Claims, 5 Drawing Figures



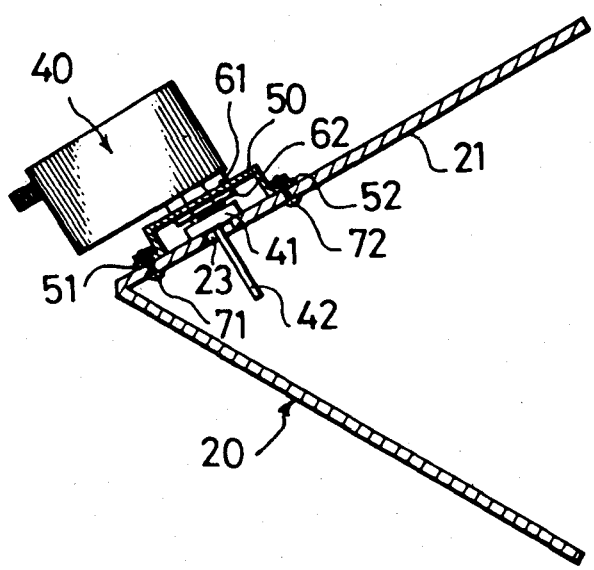
4,271,534 Jun. 2, 1981

Microwave Receiver

Inventor: Akira Takayama.
Assignee: Alps Electric Co., Ltd.
Filed: Sep. 17, 1979.

Abstract—A microwave receiver is constituted by an antenna having a reflector and a primary radiator, and a converter having an unbalanced input terminal. A core conductor projected from the unbalanced terminal of the converter is extended inside the reflector through a bore formed therein so as to function as the primary radiator of the antenna. The converter is fixed directly to the wall of the reflector.

4 Claims, 3 Drawing Figures



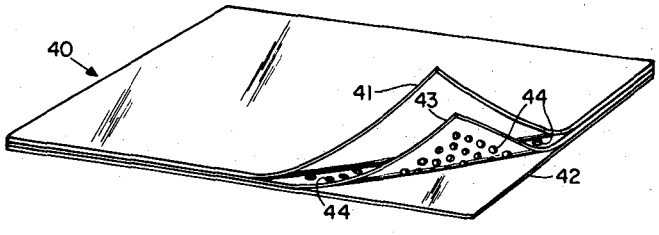
4,268,738 May 19, 1981

Microwave Energy Moderator

Inventors: Thomas J. Flautt, Jr.; Edward J. Maguire, Jr.; David L. Richardson.
Assignee: The Procter & Gamble Company.
Filed: Nov. 25, 1977.

Abstract—A microwave moderator for partially attenuating and/or modifying microwave energy to achieve, for instance, more uniform cooking of comestible articles in microwave ovens. Packages, bags, and wraps are disclosed which comprise such microwave moderators and which enable microwave cooking of frozen foods at relatively high microwave oven power levels without requiring precooking, defrosting or oven power level changes. Such a moderator may comprise an array of alternately disposed or spaced areas of microwave reflective material, and complemental-shape, substantially microwave transparent zones. One species of such moderators is exemplified by a warp which comprises a perforate sheet of microwave reflective material; for instance, aluminum foil. In embodiments comprising such a perforate sheet, the perforate sheet is provided with a plurality of generally uniformly spaced apertures which are sufficiently large with respect to the wavelength of the microwave energy that a substantial portion of such microwave energy directed at said moderator will pass therethrough. The moderator may also include a sheet of microwave transparent, moisture barrier material such as thermoplastic film which is selectively foraminous or perforated to control the passage of vapor (for venting) and liquids (for draining) through the moderator. A dynamic, temperature responsive microwave moderator is also disclosed which will change from being relatively transparent to microwave energy or having a predetermined degree of microwave energy transmissibility to being substantially less transparent or substantially opaque to microwave energy or to having a substantially diminished degree of microwave energy transmissibility when heated to or above a predetermined temperature.

24 Claims, 48 Drawing Figures



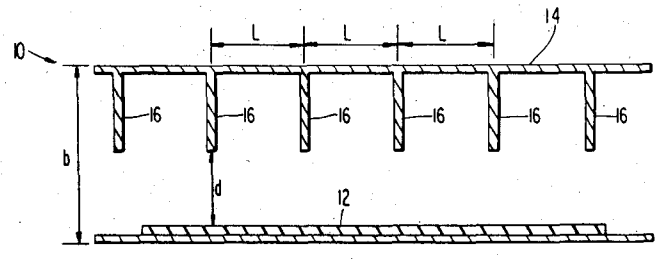
4,268,803 May 19, 1981

Periodic Lid for Integrated Circuit

Inventors: William H. Childs; Peter A. Carlton.
Assignee: Communications Satellite Corporation.
Filed: May 24, 1979.

Abstract—Periodic fins are provided on the lid of a microwave integrated circuit (MIC) package in order to reactively suppress specified bands of frequency and thereby increase the permissible dimensions of the MIC package.

5 Claims, 6 Drawing Figures



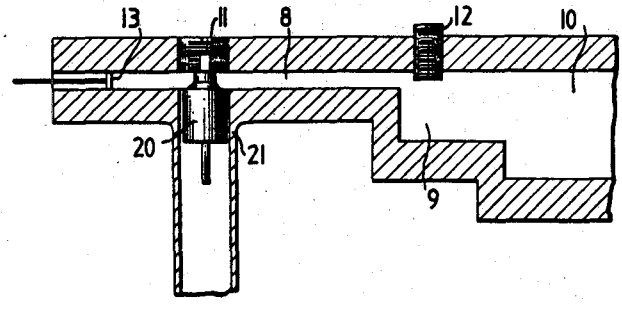
4,270,099 May 26, 1981

Circuit Arrangement for Generating and Stably Amplifying Broadband RF Signals

Inventors: Hardial S. Gill; Othmar Tegel.
Assignee: Licentia Patent-Verwaltungs-G.m.b.H.
Filed: Jun. 18, 1979.

Abstract—A circuit arrangement for generating and stably amplifying broadband rf signals. The circuit arrangement includes a first rectangular waveguide designed for operation in a frequency range below its cutoff frequency and a second rectangular waveguide for operation at the operating frequency. An active semiconductor element is disposed in the first rectangular waveguide and a direct voltage is supplied to the semiconductor element. At least one waveguide section is provided for connecting the first and second rectangular waveguides and has the same width as the second rectangular waveguide and a height less than the second rectangular waveguide. The waveguide section matches the cross section of the first rectangular waveguide to the cross section of the second rectangular waveguide. A plurality of tuning devices are disposed in the first rectangular waveguide and the waveguide section and include a capacitively acting tuning screw and an inductively acting tuning device, the latter being disposed in an end of the first rectangular waveguide remote from the waveguide section.

7 Claims, 7 Drawing Figures



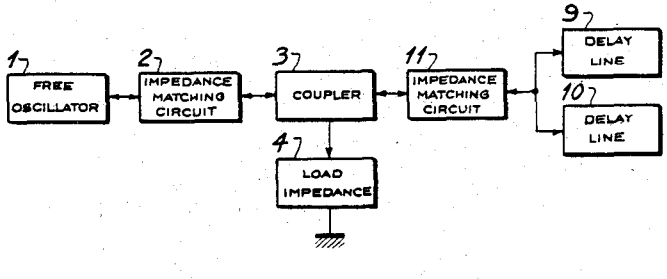
4,270,100 May 26, 1981

Microwave Acoustic Wave Oscillator

Inventors: Jean-Ierre Bergero; Yves Charlet; Philippe Leschaeve.
Assignee: Thomson-CSF.
Filed: Apr. 12, 1979.

Abstract—The microwave oscillator is formed by a free oscillator 1 coupled with two surface or volume acoustic wave delay lines 9 and 10 connected in series or in parallel and operating by reflection. The first line imposes a delay $2\tau_1$, corresponding to one reciprocation, which is a multiple of the delay $2\tau_2$ imposed by the second line, and $a = \tau 1/\tau 2$ is perferably equal to 2 or 3. Application to oscillators operating at ultra-high frequencies, particularly in the *L*-band.

7 Claims, 7 Drawing Figures



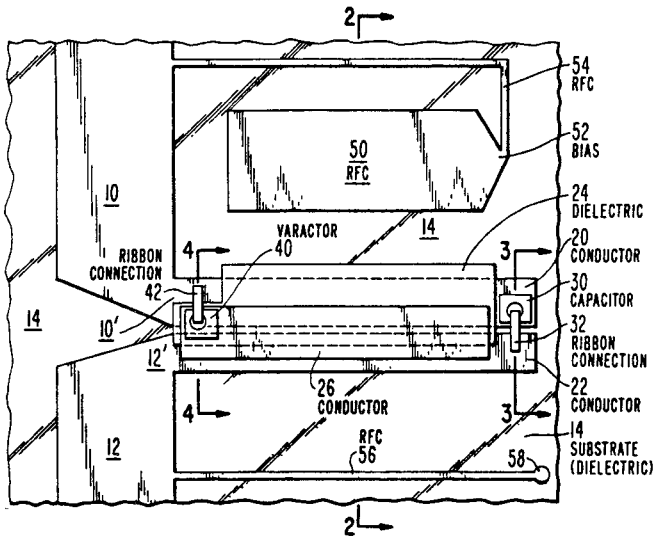
4,270,104 May 26, 1981

Phase Equalizer in Microwave Transmission Line

Inventor: Alfred Schwarzmann
Assignee: RCA Corporation
Filed: Nov. 23, 1979

Abstract—A resonant circuit phase equalizer includes two quarter-wavelength-long strip conductors extending in parallel from adjacent ends of respective input and output strip conductors of a microwave stripline transmission line. A fixed MIS direct-current-blocking and radio-frequency tuning capacitor is connected across the remote ends of the quarter-wave strip conductors. A variable varactor capacitor is connected across the near ends of the quarter-wave strip conductors. A variable direct-current bias voltage is applied through radio frequency choke conductors to the varactor to vary the capacitance thereof and the center frequency tuning of the equalizer.

5 Claims, 8 Drawing Figures



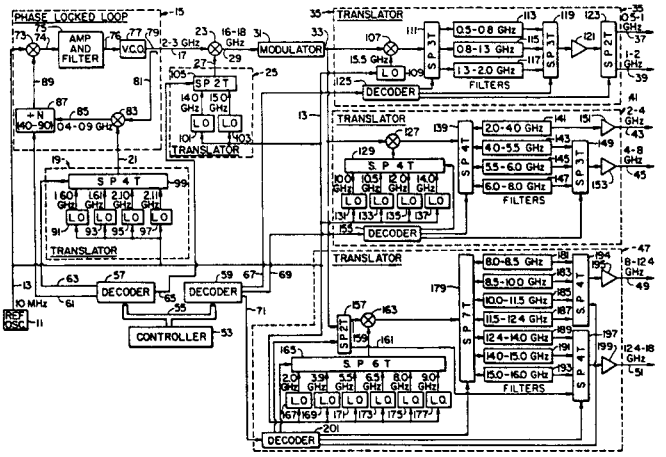
4,272,730 Jun. 9, 1981

Microwave Frequency Synthesizer Utilizing A Combination of A Phase Locked Loop and Frequency Translation Techniques

Inventor: Joseph J. Digiovanni.
Assignee: Itek Corporation.
Filed: Apr. 30, 1979.

Abstract—A microwave frequency synthesizer utilizing a phase locked loop for generating a wide range of microwave frequencies in response to a control signal, in combination with a network including a plurality of distinct frequency local oscillators that are appropriately selectable for mixing with the signal output of the phase locked loop for translating it into a desired range, thereby expanding the effective frequency range of the phase locked loop. the combination provides a stable source of microwave frequency signals over a wide frequency range. The combination allows a simple, low cost circuit implementation and may be switched between output frequencies at a very fast speed.

13 Claims, 2 Drawing Figures



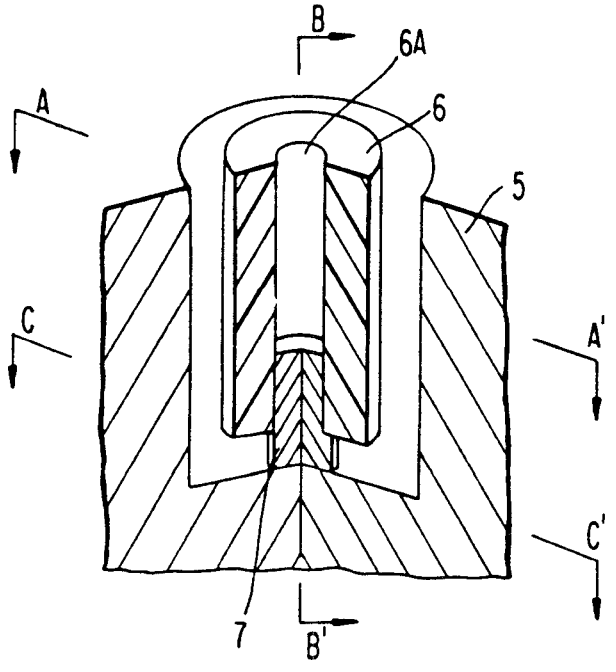
4,271,399 Jun. 2, 1981

Dielectric Resonator for VHF to Microwave Region

Inventor: Hideo Morita.
Assignee: Nippon Electric Co., Ltd.
Filed: Apr. 24, 1979.

Abstract—A high frequency miniaturized dielectric resonator is disclosed. The resonator includes an elongated dielectric member axially hollow at least in part of its cross section. A conductor surrounds the dielectric member, and a metal rod is inserted into the hollowed part of the dielectric member and coupled to the conductor. This structure supports resonance in a hybrid mode including the TEM mode and the TE_{10g} mode (g being a positive number).

5 Claims, 12 Drawing Figures



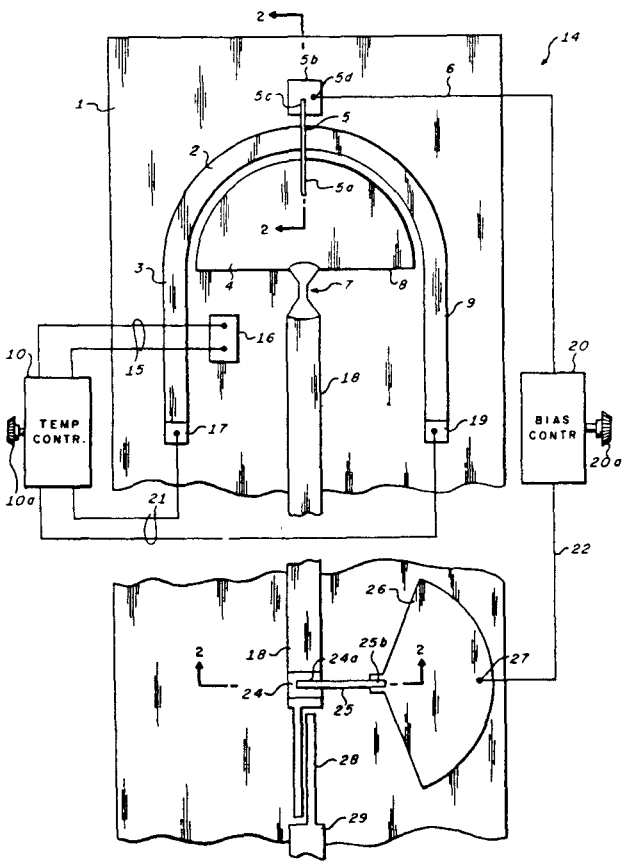
4,272,731 Jun. 9, 1981

Thin Film Resistor Microwave Noise Generator

Inventors: W. Baldwin Day; Harry F. Strenglein.
Assignee Sperry Corporation.
Filed: May 25, 1979.

Abstract—The invention is a noval noise reference generator for use in amplitude comparison radiometric systems for the purpose of rapid precision control of the over-all gain of the radiometer receiver. The reference generator operates by cyclic modulation of the temperature of a unique planar thin film microresistor which may be disposed in a constant temperature environment. A strip transmission circuit provides a common path for the microresistor heater current and for the generated noise signals, along with means for separating these currents.

14 Claims, 9 Drawing Figures



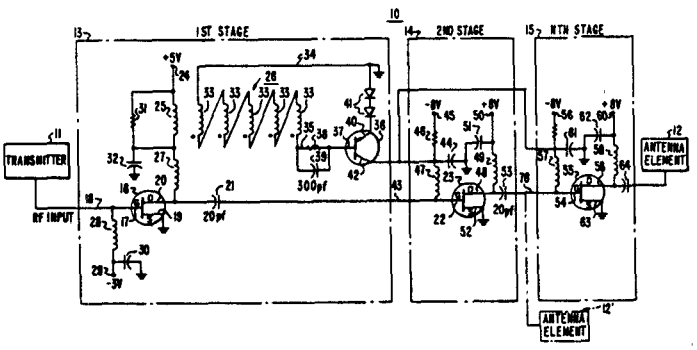
4,268,797 May 19, 1981

Self-Pulsed Microwave Power Amplifier

Inventors: Daniel C. Buck; Ricky D. Hess.
Assignee: Westinghouse Electric Corp.
Filed: Mar. 28, 1979.

Abstract—A pulsed microwave power amplifier for radar transmitters having a class B operated first stage field effect amplifying transistor, which is gate biased to pinch-off in the absence of an input pulse is disclosed. The drain current pulse induced in response to the input RF signal appears as a voltage, which is stepped up through a Ruthroff transformer to turn on a bipolar transistor which switches a gate of a second stage field effect transistor from pinch-off voltage to a voltage corresponding to the drain current substantially equalling $\frac{1}{2} I_{DSS}$ to operate class A for the second stage of amplification. A third stage of amplification may be utilized, where in its field effect transistor, which is also biased to pinch-off is operated in response to the amplified signal.

7 Claims, 4 Drawing Figures



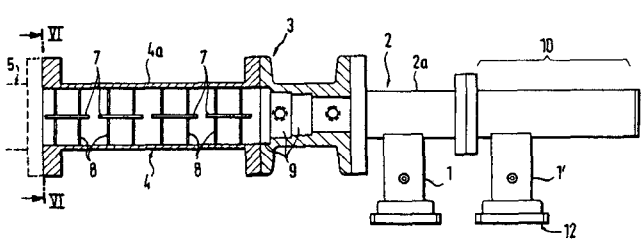
4,268,804 May 19, 1981

Transmission Line Apparatus for Dominant TE_{11} Waves

Inventors: George Spinner; Leo Treczka.
Assignee: Spinner GmbH.
Filed: Aug. 16, 1978.

Abstract—Transmission line apparatus for transmitting Te dominant electromagnetic waves is provided in accordance with the teachings of the present invention. The transmission line apparatus according to the present invention relies upon a transmission waveguide having a uniform cross-section which is substantially larger in dimension than that required for propagation of only the TE dominant electromagnetic wave desired to be transmitted. The transmission waveguide is in fact so large with respect to the transmission frequency for the TE dominant electromagnetic wave selected that a plurality of waves can form and be propagated, however, losses along the waveguide are markedly reduced. The transmission waveguide is provided with guides in the form of structure present in the waveguide which prevents a rotation of the plane of polarization of the TE dominant electromagnetic waves being transmitted. Additionally, according to further aspects of the present invention, coupling structure, which insures that only TE dominant electromagnetic waves are coupled or decoupled form the transmission waveguide are provided. This structure may comprise structure for introducing and receiving signals to be conveyed, structure for matching the boundaries of the transmission waveguide to the introducing or receiving structure and filtering structure to insure that only TE dominant electromagnetic waves are applied to and received from the transmission waveguide.

33 Claims, 22 Drawing Figures



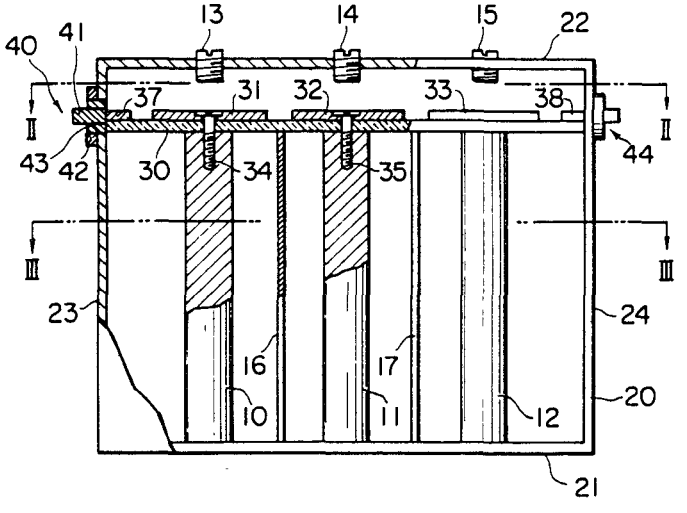
4,268,809 May 19, 1981

Microwave Filter Having Means for Capacitive Interstage Coupling Between Transmission Lines

Inventors: Mitsuo Makimoto; Sadahiko Yamashita.
Assignee: Matsushita Electric Industrial Co., Ltd.
Filed: Aug. 31, 1979.

Abstract—A microwave filter comprising within a conductive casing, a plurality or resonant transmissionlines arranged parallel between opposed end walls of the casing, a plurality of shielding members each located between adjacent transmission lines, and a capacitive interstage coupling member disposed transverse to the transmission line. The interstage coupling member comprises a dielectric member and a plurality of conductive regions arranged successively thereon so as to establish capacitive coupling between adjacent conductive regions. Each transmission line is connected at one end to a side wall of the casing and supported at the other end by the dielectric member in electrical contact with a respective one of the conductive regions, whereby the interstage coupling between the transmission lines is provided by the capacitively coupled conductive regions.

17 Claims, 8 Drawing Figures



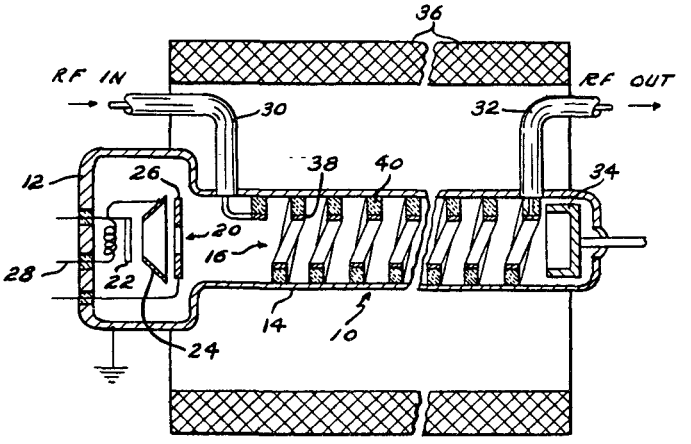
4,268,778 May 19, 1981

Traveling Wave Device with Unific Slow Wave Structure Having Segmented Dielectric Support

Inventor: Walter Friz.
Assignee: Louis E. Hay.
Filed: Jun 27, 1979.

Abstract—A traveling wave device, or the like, having an internal metallic helical core element which has a plurality of particulate deposition deposited dielectric segments to form an unific slow wave structure having an improved balance between the heat conductive and electrical requirements of said slow wave structure; and methods for forming said balanced slow wave structure.

18 Claims, 8 Drawing Figures



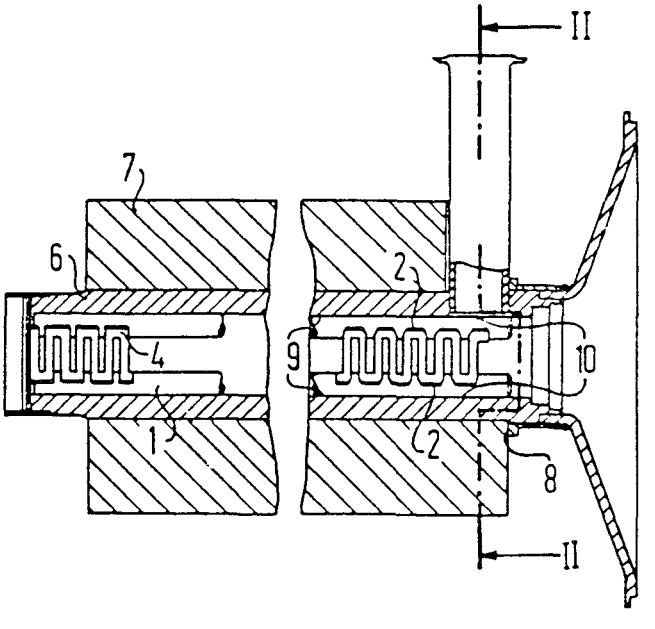
4,270,069 May 26, 1981

Traveling Wave Tube and Method of Making Same

Inventor: Wolf Wiehler.
Assignee: Siemens Aktiengesellschaft.
Filed: Jul. 25, 1979

Abstract—A traveling wave tube has a delay line in the form of a spiral conductor supported within a metallic vacuum shell by a plurality of dielectric support rods. The support rods are covered at least partially with a metalization and soldered together with the delay line and the vacuum shell is shrunk onto the support rods, thus providing a simple structure having good heat dissipating properties

9 Claims, 2 Drawing Figures



4,270,070 May 26, 1981

Traveling Wave Tube

Inventor: Franz Gross.
Assignee: Siemens Aktiengesellschaft.
Filed: Sep. 10, 1979.

Abstract—A traveling wave tube has a helix or ring-bridge delay line arranged within a vacuum envelope and a plurality of dielectric holding rods parallel to each other for supporting the delay line. The vacuum envelope has an axial longitudinal groove intermediate between two holding rods, and a pressure element located within the groove presses, by way of a tension plate, the holding rods against receiving surfaces provided in the interior of the vacuum envelope, whereby the holding rods are in good mechanical and heat-conducting relationship with the envelope.

7 Claims, 1 Drawing Figure