LB-965

Licensee Patent Bulletin

Series 54-3

RADIO CORPORATION OF AMERICA

RCA LABORATORIES DIVISION

INDUSTRY SERVICE LABORATORY

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Series 54-3

July 1, 1954 to September 30, 1954

Approved

Stuart Wm Seeley
per C.W.S.

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Total . . . . . 144 patents

Note

THIS bulletin contains a list of recently issued patents and patents under which rights have recently been acquired, in respect of which Licensees of Radio Corporation of America are licensed pursuant to the terms of their respective license agreements with Radio Corporation of America and of the agreements with others whereby Radio Corporation of America has acquired such rights.

With respect to the listed patents of Raytheon Manufacturing Company and/or its subsidiaries Belmont Radio Corporation and Submarine Signal Company, the scope of the licenses granted by RCA under such patents is set forth in revised page 3 of LB-766.

Patents up to and including No. 2,094,573 have expired on or before Sept. 28, 1954.

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2,689,191	RCA	IV-C
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2,689,274	RCA	VI
2,689,299	RCA	III-C
2,689,301	NURC	III-C
2,689,325	RCA	III-C
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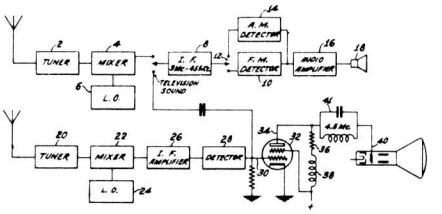
SECTION I. RADIO BROADCAST RECEIVERS

I-A. Sound Receivers (includes Phonographs)

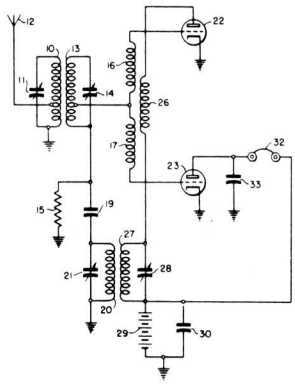
2,686,221
SIMPLIFIED COMBINATION FM AND TELEVISION RECEIVER
Jack Avins, Staten Island, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application November 3, 1949, Serial No. 125,350
The terminal fifteen years of the term of the patent to be granted has been disclaimed
1 Claim. (Cl. 178—5.8)



A combination receiver comprising: a tuner, a mixer, an intermediate frequency amplifier and second detector of an intercarrier sound television receiver, said second detector being capable of conditionally delivering an intercarrier beat frequency carrier modulated with aural intelligence; a frequency modulation receiver including a tuner, mixer and intermediate frequency amplifier; means for deriving a harmonic of the intercarrier beat frequency carrier when present in said second detector, said frequency modulation receiver intermediate frequency amplifier being tuned to said intercarrier beat frequency harmonic; and switching means to selectively connect the output of the mixer of the frequency modulation receiver or the output of said means for deriving the harmonic of the intercarrier beat frequency carrier to the frequency modulation receiver intermediate frequency amplifier.

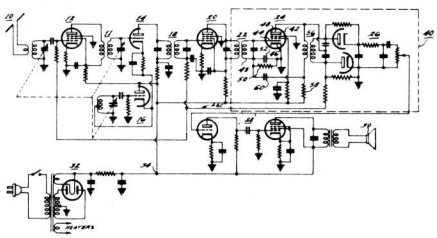
2,686,258
AMPLIFIER
Coleman J. Miller, Catonsville, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application March 28, 1950, Serial No. 152,361
14 Claims. (Cl. 250—20)

1. A super-regenerative amplifier comprising an amplifier tube having a control electrode and an anode, a circuit comprising a first coil connected at one end to said control electrode, an input circuit directly connected to the other end of said first coil for supplying input signals to said coil, a second coil having one end connected to said other end of said first coil, an output circuit comprising a potential responsive device and



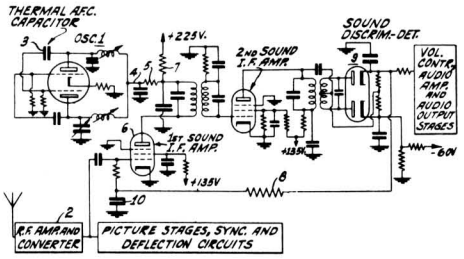
a load connected to the other end of said second coil for forming therewith a circuit having substantially the same electrical characteristics as said input circuit, and a feed-back coil connected to said anode and inductively coupled to said first and second coils.

2,686,259
REDUCTION OF AMPLITUDE MODULATION IN FREQUENCY MODULATION RECEIVERS
Winfield R. Koch, Marlton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 30, 1950, Serial No. 182,233
10 Claims. (Cl. 250—20)



1. An amplifier system for frequency-modulated carrier waves, comprising in combination, an electron amplifier device having at least a control electrode, cathode and anode, a resonant carrier wave input circuit, a loading resistance device, a series circuit including the resonant input circuit, the control electrode, and cathode of said electron amplifier and the loading resistance device, thereby to provide a direct current path between said control electrode and cathode including said loading resistance device, said loading resistance device having a resistance which is of the order of the effective impedance presented by said resonant input circuit to said carrier waves, a carrier wave frequency by-

pass capacitor shunting said resistance device to prevent degeneration of the carrier wave, an output circuit for said electron amplifier having resonant carrier wave means connected to said anode, a low-frequency impedance included in said output circuit, and a feedback path connected directly between said low-frequency impedance and said resistance device and including a feedback capacitor to feed back only low frequency amplitude variations of the carrier wave, whereby variations in amplitude of the carrier wave are absorbed by said resonant input circuit without appreciable loss to the normal carrier wave amplitude level.

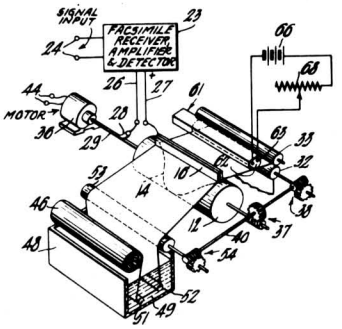


2,688,085
AUTOMATIC FREQUENCY CONTROL
Eugene O. Keizer, Hugh L. Donley, and Chandler Wentworth, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application March 22, 1950, Serial No. 151,256
8 Claims. (Cl. 250—36)

6. An automatic frequency control system comprising an oscillator the frequency of which is to be controlled, a temperature-responsive capacitor the capacitance of which varies with the temperature thereof, means so coupling said capacitor to the frequency-determining circuit of said oscillator as to cause oscillatory energy from said oscillator to flow through said capacitor, such flow of oscillatory energy acting to heat said capacitor by dielectric losses therein and to vary the capacitance of said capacitor, and circuit means responsive to drifts of the oscillator frequency from a predetermined value for varying the magnitude of the oscillatory output voltage of said oscillator and thereby also the magnitude of the oscillatory energy flowing through said capacitor.

I-B. Television Receivers (includes Facsimile)

2,683,111
ELECTRICAL RECORDING
Harold G. Greig, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 29, 1949, Serial No. 102,133
The terminal fifteen years of the term of the patent to be granted has been disclaimed
2 Claims. (Cl. 204—2)

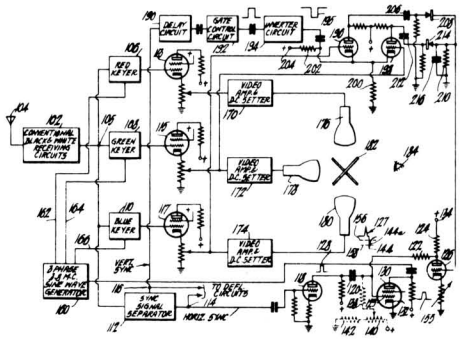


1. The method of producing marks which combine to represent an image upon the surface of a record receiving sheet, comprising moistening said sheet with a neutral solution of an electrolyte which is a salt of a strong acid and a strong base, passing a unidirectional electric signaling current through said moistened sheet in successive elemental areas, said current being of a magnitude and being applied in a time sufficient to produce an acidified condition on one side of the sheet in each elemental area receiving said current, and immediately applying heat to one side of the sheet in an amount sufficient only to cause discoloration by charring of the area subjected to acidulation by the current to present an appearance which contrasts with the unchanged background of the sheet.

2,683,768
MULTIPLEXING SYSTEM SYNCHRONIZATION
Warren H. Bliss, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 1, 1950, Serial No. 141,699
16 Claims. (Cl. 178—5.2)

15. A color television receiver comprising means to receive a composite time multiplex television signal having a synchronizing component and color channel pulse component, a signal distributing apparatus having an input terminal and a plurality of output terminals to which said input terminal is periodically and individually coupled in accordance with a timing signal, a separate color channel connected with each dis-

tributing apparatus output terminal, a signal



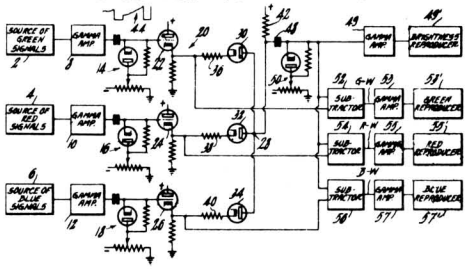
generator for developing a timing signal for said signal distributing apparatus, means for controlling the phase of said timing signal generator in accordance with an actuating signal, and means responsive to the output of at least two color channels for developing an actuating signal for said control means.

2,684,995

APPARATUS FOR REPRODUCING IMAGES IN COLOR

Alfred C. Schroeder, Southampton, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application June 28, 1951, Serial No. 234,015
4 Claims. (Cl. 178—5.4)



1. Apparatus for reproducing images in color comprising in combination a brightness image reproducer, and a plurality of color image reproducers, a plurality of sources of signals, each representing a different color, amplitude responsive means for applying the smallest of said color signals to said brightness reproducer, means responsive to relative signal amplitudes for separately subtracting the smallest of said color signals from each of the color signals, and means coupling each of the outputs of said subtracting means to a corresponding color reproducer.

2,685,047

COLOR TELEVISION ELECTRON BEAM DEFLECTION CONTROL SYSTEM

Donald G. Moore, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 25, 1950, Serial No. 146,230
14 Claims. (Cl. 315—12)

1. An electron beam deflection control system for a color television receiver embodying a kinescope having a luminescent screen including a multiplicity of groups of substantially horizontal strips of material capable respectively of producing light of the different component colors

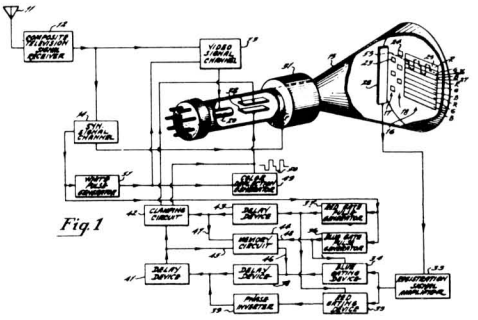


Fig. 1

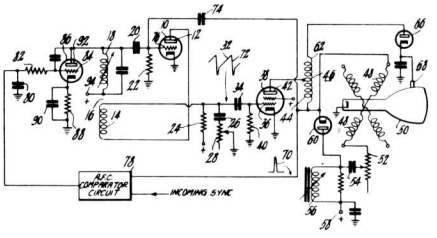
of an image to be reproduced in response to excitation by an electron beam deflected over said screen, said kinescope also having electrode structure adjacent to one edge of said screen to generate registration signals responsive to traversal thereof by said beam and representative of the orientation of said beam with successive groups of said screen strips, said control system comprising, beam-deflecting means adjacent to said electron beam path and energizable to effect registration of said beam with successive groups of said screen strips, means for developing correcting signals from said registration signals, means for energizing said beam-deflecting means by said correcting signals, means for storing said correcting signals respectively during successive horizontal deflections of said beam over said screen, and means to combine said stored correcting signal for each horizontal beam deflection to develop a correcting signal for said next horizontal beam deflection.

2,686,276

WAVE GENERATING SYSTEM

Earl I. Anderson, Manhasset, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

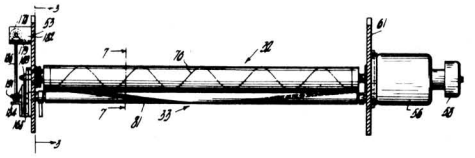
Application August 25, 1950, Serial No. 181,551
9 Claims. (Cl. 315—27)



1. In an electrical circuit the combination of, a class C type sine wave oscillator comprising an electron discharge device having an input and output connection with a feedback coupling therebetween, said feedback coupling being so adjusted that said discharge device is rendered conductive only during a portion of the sine wave cycle, means coupled with said oscilllator for developing a pulsed wave form in synchronism with said oscillator said pulsed wave form having a peak of shorter duration than the conduction period of said discharge device, and means

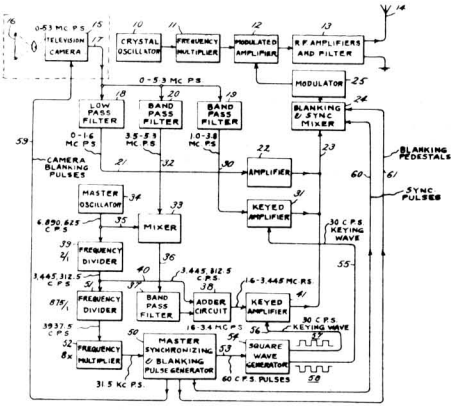
for regeneratively applying said pulsed wave form as additional feedback to said discharge device such as to periodically shorten the conduction time of said discharge device.

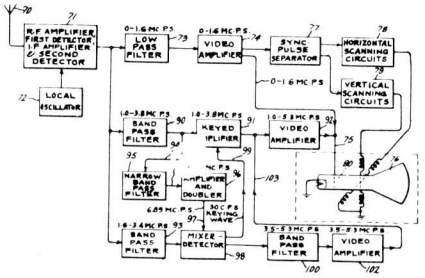
2,686,706
FACSIMILE RECORDER
Charles J. Young, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application May 29, 1950, Serial No. 165,049
10 Claims. (Cl. 346—101)



1. A recorder for facsimile signals comprising a pair of helical electrodes, one of said electrodes having a different number of turns and being of different diameter from the other, means to support and drive said helices for rotation about parallel axes, means for applying a signal to said electrodes, and means for feeding a record receiving sheet between said electrodes.

2,686,831
HIGH-DEFINITION TELEVISION SYSTEM AND METHOD
Robert B. Dome, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application October 31, 1950, Serial No. 193,164
21 Claims. (Cl. 178—6.8)





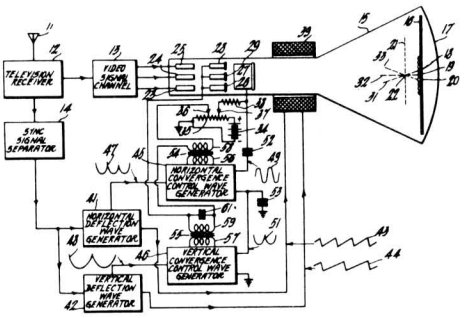
11. In a high definition facsimile transmitting system, means for recurrently scanning a scene in a predetermined sequence and for developing a corresponding train of periodic picture signals, said signals each including frequency components extending up to a predetermined high frequency, means for subdividing said signals into three substantially-contiguous frequency bands extending up to said high frequency, namely a low-frequency band A, a medium-frequency band B and a high-frequency band C, said band B having a bandwidth at least equal to that of band C, means for generating a wave of a particular frequency differing from the frequencies of band C by frequencies lying within band B, means for mixing the signals of band C with said wave and for selecting the difference-frequency of side band C', means for producing a subcarrier wave of a frequency related to said particular frequency by an integral ratio and lying within the limits of band B, means for generating and transmitting a carrier wave, means for modulating the signals of band A continuously on said carrier wave, keying means for alternately modulating the signals of band C' on said carrier wave in synchronism with said scanning sequence, and means for additionally modulating said subcarrier wave on said carrier wave.

18. A facsimile receiver adapted to receive the modulated carrier wave from the transmitter of claim 11, comprising means for demodulating the received carrier wave to reproduce the modulation signals, a group of first, second and third band-pass filters respectively arranged to select signals within bands A, B and C', means for supplying said signals to all three filters in parallel, means comprising a fourth filter sharply tuned to said subcarrier frequency for selecting said subcarrier wave from said signals, a mixer, means for energizing said mixer from said third and fourth filters, means comprising said mixer for retransposing the signals of band C' into band C, a cathode ray picture tube having an intensity control electrode, first, second, and third, parallel signal channels connected respectively to said filters, means comprising said three signal channels for respectively supplying signals from said first filter, said second filter and said frequency-conversion means to said electrode, said second and third channels each including a device adapted to be keyed on or off, means for deriving synchronizing potentials from said received wave corresponding to the alternations in the signals of said bands B and C', and keying means controlled by said potentials for keying said devices alternately on and off in proper sequence to supply the signals of bands B and C to said electrode.

2,687,493
DYNAMIC ELECTRON BEAM CONTROL SYSTEM
Loren R. Kirkwood, Oaklyn, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 30, 1950, Serial No. 198,313
7 Claims. (Cl. 315—13)

1. In a cathode ray tube image-reproducing system wherein a plurality of electron beams, which traverse paths before deflection that are spaced respectively about a longitudinal axis of the tube, are angularly deflected both horizontally and vertically to scan a raster in a prede-

termined plane, a dynamic beam-controlling system comprising, individual field-producing means disposed respectively adjacent to the paths of said electron beams and energizable to control the focusing of said individual beams, and means for energizing all of said field-producing means as functions of said vertical and horizontal beam deflections, at least one of said functions being substantially sinusoidal.



7. In a system for controlling the operation of a cathode ray image-reproducing tube, an electrical wave generator comprising, first and second electron tubes each having input and output circuits, an inductive output device for said generator coupled to said second tube output circuit, means impressing upon the input circuit of said first tube a wave having a substantially parabolic form and a predetermined frequency, means coupled to the output circuit of said first tube and serving to pre-emphasize the low frequency of said parabolic wave, whereby to compensate for de-emphasis of said components by said inductive output device, means coupling said first tube output circuit to said second tube input circuit, and means degeneratively coupling said second tube output circuit and said first tube input circuit.

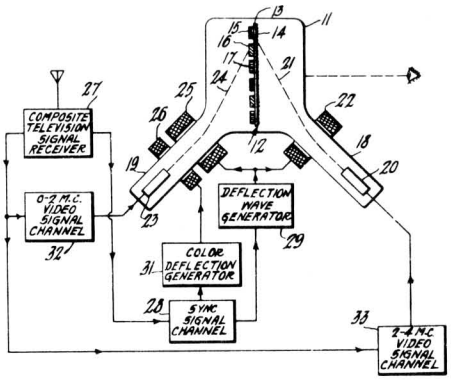
2,688,048

COLOR TELEVISION IMAGE REPRODUCTION

Albert Rose, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application October 5, 1950, Serial No. 188,503
13 Claims. (Cl. 178—5.4)

1. In a color television image-reproducing system, means for receiving video signals representative of an image to be reproduced, said video signals having a relatively low frequency component and a relatively high frequency component, one of said video signal components being representative of a plurality of component image colors and the other of said video signal components being representative of the detail of said image, cathode ray apparatus including separate electron beam-developing means both coupled to said signal receiving means and responsive, respectively, to said two video signal components and luminescent screens associated respectively, with said separate electron beam-developing means for excitation by said developed electron beam energy, said luminescent screens



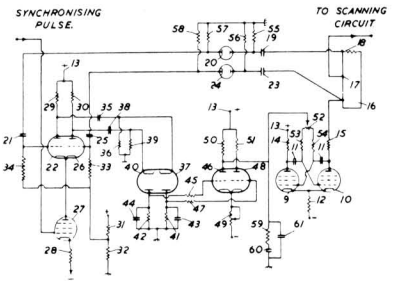
being of the types, respectively, for reproducing said component image colors and for reproducing said image detail in black and white, and both of said luminescent screens being arranged relative to one another in such a manner that the respective image reproductions may be viewed simultaneously.

2,689,914

SYNCHRONIZING OF PULSE GENERATORS

Arthur William Keen, Twickenham, England, assignor to Electric & Musical Industries Limited, Hayes, Middlesex, England, a company of Great Britain

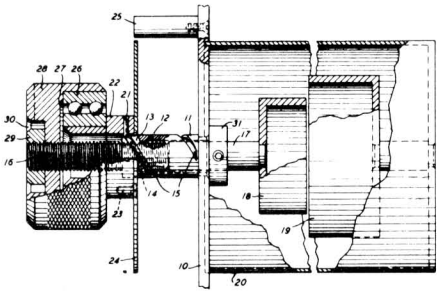
Application April 23, 1951, Serial No. 222,327
Claims priority, application Great Britain April 25, 1950
5 Claims. (Cl. 250—36)



1. A circuit for synchronizing the generation of pulses with the aid of received synchronizing pulses, comprising a free running oscillator, an output circuit for said oscillator including delay means for setting up pairs of time-spaced pulses having the frequency of said oscillator, a discriminator responsive to the time relationship of received synchronizing pulses and said pairs of pulses to produce a variable control signal, means for applying received synchronizing pulses to said discriminator, coupling means from said output circuit to said discriminator for applying said pairs of pulses to said discriminator, and a coupling from said discriminator to said oscillator to control the frequency of said oscillator in response to said control signal to maintain received synchronizing pulses intermediate the first and second pulses of said pairs of pulses.

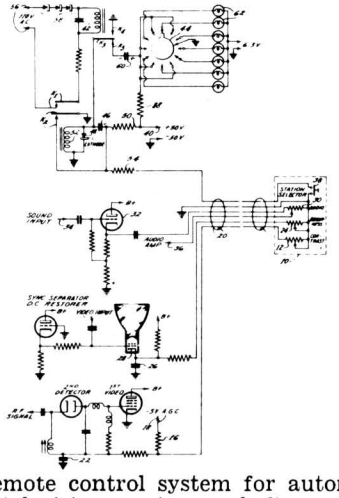
I-C. Converters, Tuners & Tuning Indicators

2,682,859
TUNING DIAL ASSEMBLY FOR ELECTRICAL APPARATUS
Rhinehardt M. Jensen and Charles T. Samek, Berkeley Heights, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application December 27, 1951, Serial No. 263,667
2 Claims. (Cl. 116—124.1)



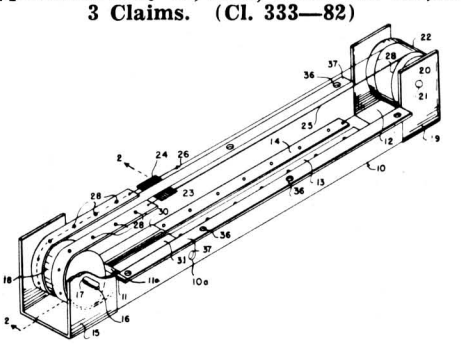
1. A tuning dial for electrical apparatus comprising a support, a sleeve having a fine internal thread and an external helical groove secured to said support, a shaft in engagement with said internal thread, a hub rotatably mounted on said sleeve and in operative engagement with said external helical groove, a knob rotatably mounted on said hub and secured to said shaft for causing the rotation thereof and a dial plate secured to said hub.

2,683,841
REMOTELY CONTROLLED SOLENOID APPARATUS
Gordon F. Rogers, North Hollywood, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application September 15, 1951, Serial No. 246,845
14 Claims. (Cl. 318—120)



1. A remote control system for automatically tuning a television receiver including a rotatable tuner from a remote unit comprising in combination, a current operated indexing mechanism including an operating solenoid and movable core element, a direct-current control circuit including a capacitor having a discharge circuit connected for causing energization of said solenoid, and remote means in said unit for selectively discharging said capacitor.

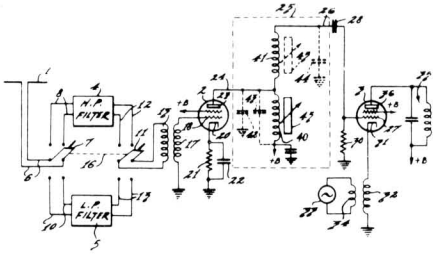
2,683,862
TUNABLE RESONANT STRUCTURE
Louis W. Schreiner, Park Ridge, Ill., assignor to Raytheon Manufacturing Company, a corporation of Delaware
Application July 11, 1951, Serial No. 236,231
3 Claims. (Cl. 333—82)



1. A tunable resonant structure for use in a distributed constant radio frequency circuit comprising in combination, a transmission line comprising a plurality of conductors at least one of which is a flexible ribbon, means for selecting the resonant frequency of said tuning structure comprising means for producing substantially a short circuit between said conductors at a predetermined point, and means for moving said flexible conductor with respect to said point comprising a pulley arrangement supporting an endless band of which said flexible conductor forms a portion.

2,687,514
TWO-BAND TUNING NETWORK
Walter Van B. Roberts, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 27, 1948, Serial No. 46,436
4 Claims. (Cl. 333—76)

1. A two band signal transfer network selectively tunable to a desired frequency within one of two substantially different high frequency ranges comprising in combination, a network input terminal, a network output terminal and a reference terminal, a pair of resonant circuits connected between said input and output terminals, each circuit having a coil and associated means connected therewith providing tuning capacitance therefor, at least one of said coils being connected between said input terminal and said reference terminal, a signal input circuit, a high pass filter and a low pass filter, means for tuning said network to a desired resonant frequency selectively within either of said different frequency

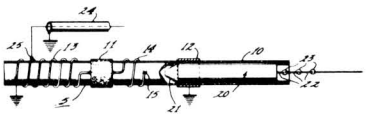


ranges comprising a single paramagnetic core movable alternatively with respect to one or the other of said coils, and uni-control means for selectively connecting said filters between said signal input circuit and said network input terminal and for moving said core.

2,688,691
ULTRAHIGH-FREQUENCY TUNABLE STRUCTURE AND CIRCUIT
Wen Yuan Pan, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 28, 1952, Serial No. 274,035
11 Claims. (Cl. 250—20)

1. A tunable resonant structure for ultra high frequency signal circuits comprising an open-circuited inductor having a first and second portion, a conductive capacitance member serially connected between said inductor portions, a single conductive tuning element associated with said inductor and with said capacitance member to provide a capacitance between said inductor and said tuning element and between said capacitance member and said tuning element, said



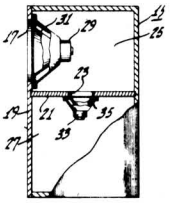
tuning element being movable with respect to and along said inductor and said capacitance member to vary said capacitances upon relative movement of said tuning element, and a circuit connection between said tuning element and one end of said inductor.

I-D. Loudspeakers and Pick-Ups

2,688,373
SOUND TRANSLATING APPARATUS
Harry F. Olson, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 1, 1951, Serial No. 223,865
11 Claims. (Cl. 181—31)

6. Sound reproducing apparatus comprising a walled enclosure, means including a partition having an opening, a loudspeaker diaphragm covering said opening, said last named means dividing the interior of said enclosure into two acoustically closed chambers, one wall of said



enclosure having an opening therein connecting one of said chambers with the exterior of said enclosure, and a second loudspeaker diaphragm mounted over said opening.

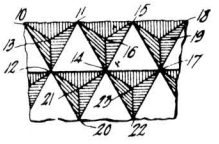
SECTION II. COMMERCIAL RADIO APPARATUS

II-B. Television Transmitters (includes Facsimile)

2,686,218
COLOR TELEVISION SYSTEM
Alfred N. Goldsmith, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

Application October 25, 1949, Serial No. 123,340
4 Claims. (Cl. 178—5.4)

1. A color television system including an electron tube having a target screen bearing similar multi-surface indentations so arranged that each group of their corresponding surfaces are in successive rows and the rows of each group are at an angle with the rows of the other groups, a plurality of means for forming different electron

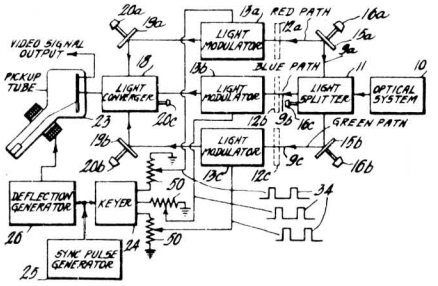


beams each adapted to scan a different group of said groups of corresponding surfaces, a beam deflection circuit including (1) means for developing a horizontal deflection potential for moving the first of said beams along a row of the first of said groups, (2) means for developing opposed deflection potentials which are the resultants of vertical and horizontal deflection potential components for moving the second and third of said beams respectively along a row of the second and third of said groups and (3) means for developing a vertical deflection potential by which said first, second and third beams are moved into alignment with the successive rows of said first, second and third groups, and means rendering said groups each emissive of light in a different component color in response to the application of an electron beam.

2,686,219
TELEVISION SYSTEM

Nils E. Lindenblad, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application April 9, 1951, Serial No. 220,073
3 Claims. (Cl. 178—5.4)



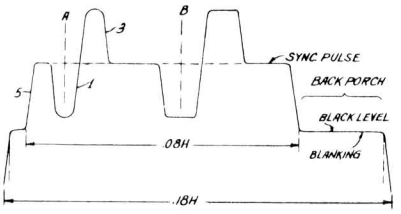
1. An image light modulator comprising in combination, optical means dividing said light into a plurality of independent light paths physically separated, a light modulator positioned in each of said light paths through which said light is adapted to pass, means also positioned in each of said light paths limiting the light passing therethrough and along said light path to a different selected component color in each light path, means actuating said light modulators in a predetermined sequence and optical means converging said independent light paths.

2,686,220
CONVEYANCE OF AUXILIARY INFORMATION IN A TELEVISION SYSTEM

George C. Sziklai and Francis J. Darke, Jr., Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application May 28, 1948, Serial No. 29,796
13 Claims. (Cl. 178—5.6)

1. The method of conveying auxiliary visual information in a television system of the type

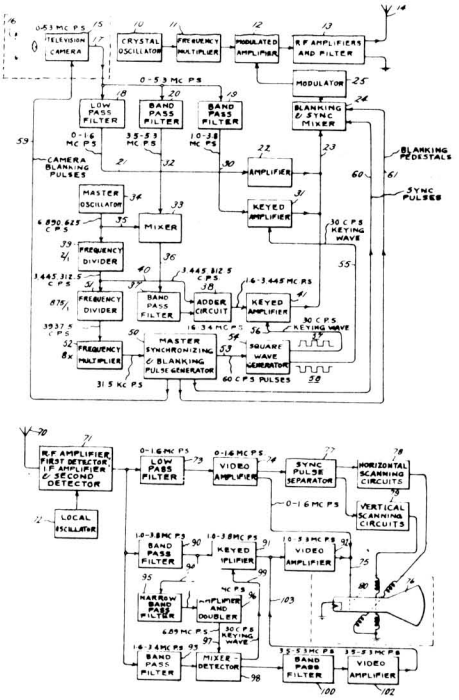


employing an image reproducing tube arranged to receive image signals with associated blanking impulses comprising the steps of developing an image signal, an auxiliary image signal, and blanking impulses, amplitude modulating said blanking impulses with said auxiliary image signal, reversing the polarity of said modulated blanking impulses with respect to said image signals, and developing a light image from said modulated blanking impulses.

2,686,831
HIGH-DEFINITION TELEVISION SYSTEM AND METHOD

Robert B. Dome, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York

Application October 31, 1950, Serial No. 193,164
21 Claims. (Cl. 178—6.8)



11. In a high definition facsimile transmitting system, means for recurrently scanning a scene in a predetermined sequence and for developing a corresponding train of periodic picture signals, said signals each including frequency components extending up to a predetermined high frequency, means for subdividing said signals into three substantially-contiguous frequency bands extending up to said high frequency, namely a low-frequency band A, a medium-frequency band

B and a high-frequency band C, said band B having a bandwidth at least equal to that of band C, means for generating a wave of a particular frequency differing from the frequencies of band C by frequencies lying within band B, means for mixing the signals of band C with said wave and for selecting the difference-frequency of side band C', means for producing a subcarrier wave of a frequency related to said particular frequency by an integral ratio and lying within the limits of band B, means for generating and transmitting a carrier wave, means for modulating the signals of band A continuously on said carrier wave, keying means for alternately modulating the signals of band C' on said carrier wave in synchronism with said scanning sequence, and means for additionally modulating said subcarrier wave on said carrier wave.

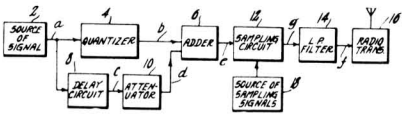
18. A facsimile receiver adapted to receive the modulated carrier wave from the transmitter of claim 11, comprising means for demodulating the received carrier wave to reproduce the modulation signals, a group of first, second and third band-pass filters respectively arranged to select signals within bands A, B and C', means for supplying said signals to all three filters in parallel, means comprising a fourth filter sharply tuned to said subcarrier frequency for selecting said subcarrier wave from said signals, a mixer, means for energizing said mixer from said third and fourth filters, means comprising said mixer for retransposing the signals of band C' into band C, a cathode ray picture tube having an intensity control electrode, first, second, and third, parallel signal channels connected respectively to said filters, means comprising said three signal channels for respectively supplying signals from said first filter, said second filter and said frequency-conversion means to said electrode, said second and third channels each including a device adapted to be keyed on or off, means for deriving synchronizing potentials from said received wave corresponding to the alternations in the signals of said bands B and C', and keying means controlled by said potentials for keying said devices alternately on and off in proper sequence to supply the signals of bands B and C to said electrode.

2,686,869

SIGNAL TRANSMISSION SYSTEM

Alda V. Bedford, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application November 27, 1951, Serial No. 258,368
7 Claims. (Cl. 250—6)



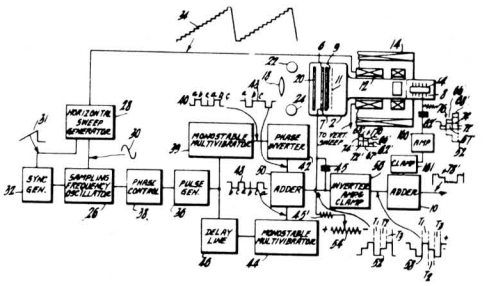
1. A transmitter for transmitting a given signal within a bandwidth less than the highest effective frequency in said signal comprising in combination, an output terminal and an input terminal, a quantizer connected so as to form a first path between said input terminal and said output terminal, a second path coupled to conduct electrical energy from said input terminal to said output terminal, means in one of said paths for delaying the signals passing therethrough, means for adjusting the relative gains of said two paths so that the maximum amplitude of the signals flowing in said second path does not exceed any one quanta level of said quantizer, and sampling means connected between said input and output terminals to permit electrical energy to flow between said input and output terminals during successive intervals.

2,689,271

COLOR TELEVISION CAMERA

Paul K. Weimer, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application April 5, 1952, Serial No. 280,757
9 Claims. (Cl. 178—5.4)



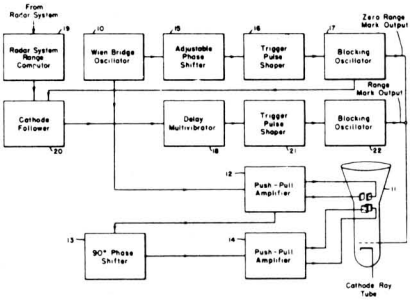
1. Apparatus for deriving a plurality of independent image-representative signals during a single scansion of a charged surface comprising in combination a cathode-ray tube having a charge storage target comprising a plurality of elemental areas, means including a cathode for directing a beam of electrons toward said target, means for causing said beam to jump scan along a series of lines on said target whereby at periodic intervals during the scanning of each of said lines said beam effectively comes to rest, means for permitting light of different component colors to charge different portions of each of said elemental areas, means for charging said different portions to different bias potentials independently of any light from said image, means for changing the electrostatic potential of said target with respect to said cathode a plurality of times during each interval of time that the beam comes to rest, and means for extracting signals from said beam in response to the discharge of said portions by said beam.

2,683,859

RANGE INDICATOR

Earl H. Rix and Richard G. Hill, Glen Burnie, Md., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application January 12, 1949, Serial No. 70,428
12 Claims. (Cl. 324—68)



11. In combination in a radar system for determining the distance to a remote object, first means for producing a direct-current potential the magnitude of which depends on the distance to said object, second means for producing a zero distance pulse, said pulse being operative as an initial time reference, third means connected to said first means and to said second means and being responsive to said pulse and operative with said potential producing first means for producing a second pulse at an interval later than said first pulse, the duration of said interval depending on the magnitude of said direct-current potential, and fourth means connected to said second means and to said third means for indicating the duration between said pulses.

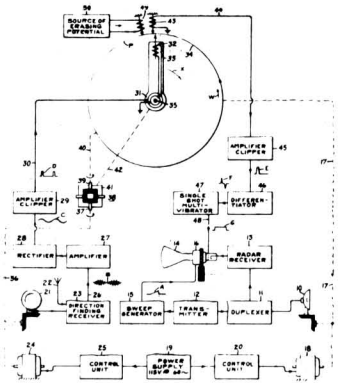
2,683,874

BEARING-CORRELATING SYSTEM

Joseph A. Wainright, Baldwinsville, N. Y., assignor to General Electric Company, a corporation of New York

Application August 9, 1952, Serial No. 303,459
6 Claims. (Cl. 343—118)

1. A bearing-correlating system for a pair of rotatable, directional energy-receiving devices comprising an annular path of magnetizable material, recording and pickup heads disposed in magnetic relation with respect to said path, means for relatively displacing said path and said recording head in synchronism with rotation of one of said devices and for relatively displacing said path and said pickup head in synchronism with rotation of the other of said devices, means electrically coupling said one device to said recording head for producing a change in magnetization on said path at a position corresponding to the bearing of a remote energy-transmitting station, and means electrically coupled to said pickup head for producing an indication in response to the output of said pickup head derived at said position of said path thereby to denote the orientation of said other device at said bearing.



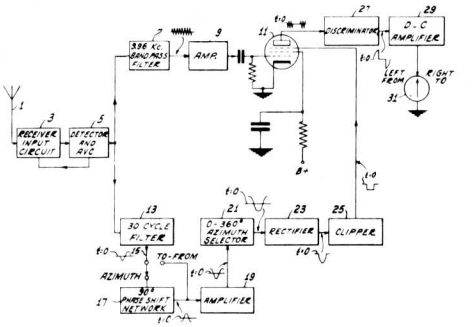
2,686,304

OMNIRANGE RADIO NAVIGATION RECEIVER

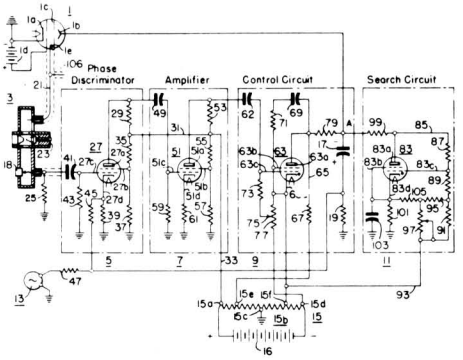
Harry Ruben, Philadelphia, Pa., and Eugene C. Kalkman, Haddonfield, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application February 23, 1951, Serial No. 212,217
10 Claims. (Cl. 343—102)

1. For use in an omni-range radio navigation system in which a ground station furnishes flight information to aircraft within the service area of said ground station by transmitting a frequency-modulated sub-carrier reference phase signal amplitude-modulating a radio-frequency carrier and a variable phase signal modulating said radio-frequency carrier; the improvement comprising a receiver, located at said aircraft, for receiving and demodulating said modulated carrier to reproduce said reference and variable phase signals at the output of said receiver, means coupled to said receiver output for separating said received reference and variable phase signals, an electron discharge device having bias means associated therewith for biasing said device to cutoff, means coupled to said signal separating means for applying said reference phase signal to said discharge device without conduction therein, means coupled to said signal separating means for applying said variable phase signal to said discharge device for gating bursts of said frequency-modulated reference signal through said device, and means coupled to said discharge device for deriving an output signal dependent upon the phase relation of said reference and variable phase signals.

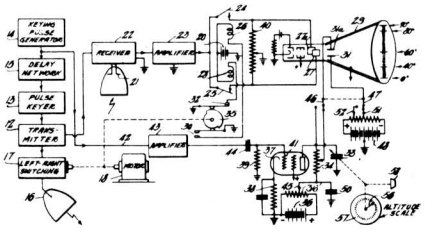


2,686,875
FREQUENCY CONTROL SYSTEM
Eugene F. Grant, Swissvale, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 20, 1945, Serial No. 606,204
6 Claims. (Cl. 250—36)



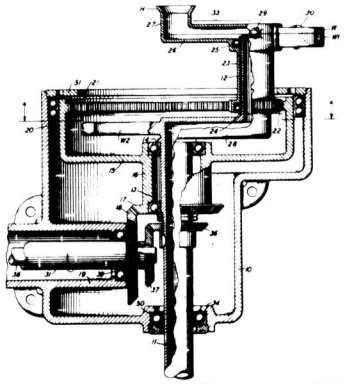
1. A frequency controlling system comprising an oscillator, a low loss resonant tank circuit fed with waves derived from said oscillator, said tank circuit being tuned to a desired frequency of operation of said oscillator, means for frequency modulating said oscillator with frequency controlling waves, an amplitude modulation detector for detecting wave energy appearing in said tank circuit, a phase detector supplied with waves from said first mentioned detector and with waves having a frequency corresponding to said control frequency, and instrumentalities responsive to the output of said phase detector for adjusting the mean frequency of operation of said oscillator.

2,688,132
RADIO ANGLE INDICATOR
Irving Wolff, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 31, 1942, Serial No. 452,989
17 Claims. (Cl. 343—16)



1. In apparatus including a source of radiation for measuring an angle between lines joining said source of radiation and two points on a surface, where one of the other angles of the triangle formed by said lines and by a line between said two points is a fixed known angle, distance measuring means including a cathode ray tube indicator having a screen and also including said source for radiating signal to said two points, said measuring means also including means for producing on said screen a cathode ray sweep trace on which distance indications appear for showing the distances from said source to said two points, and means for adjusting the positions of said distance indications on said cathode ray trace proportionally with one of said distance indications adjusted to a predetermined position so that the other distance indication gives a direct reading of said angle.

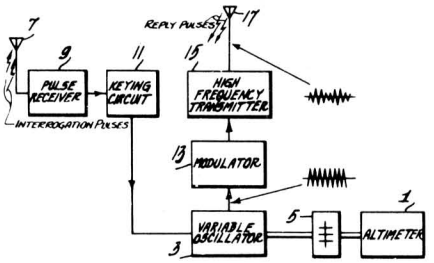
2,688,700
UNIVERSAL SCANNING MECHANISM FOR RADAR
Willard D. Lewis, Little Silver, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application September 7, 1946, Serial No. 695,569
3 Claims. (Cl. 250—33.63)



1. In a scanning mechanism comprising a casing, a pair of concentrically disposed drive shafts mounted for rotation in said casing, a driving gear keyed on each of said drive shafts within said casing, a tubular shaft mounted for rotation in said casing at right angles to said drive shafts, a drum-shaped member mounted for rotation on said tubular shaft, a gear carried by said drum-shaped member engaging one of said driving gears, a gear carried by said tubular shaft engaging the other of said driving gears, a crank element on the end of said tubular shaft within said drum-shaped member, said tubular shaft and said crank element forming a section of a wave guide, a horn-shaped scanning member for the wave guide mounted for eccentric rotation on said crank element, and separate driving mechanisms for rotating said tubular shaft and said horn-shaped scanning member for imparting scanning movements of different geometrical figures to the latter determined by the speeds of said separate driving mechanisms.

2,690,556
AIRCRAFT ALTITUDE INDICATING SYSTEM
John N. Marshall, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application January 30, 1951, Serial No. 208,472
9 Claims. (Cl. 343—13)

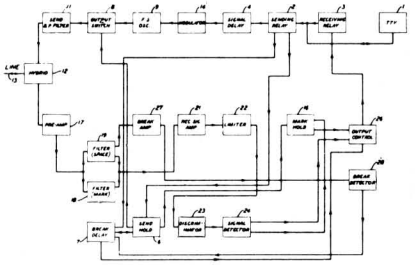
1. An aircraft altitude indicating system wherein a ground control station may ascertain the altitude of a given aircraft, said system comprising means, located at said ground control station, directionally transmitting electromagnetic



pulse energy to said aircraft; and, located at said aircraft, means for receiving said energy, means responsive to said received pulse energy for producing a sub-carrier signal having a frequency proportional to said altitude of said aircraft, means for transmitting said sub-carrier frequency signal to said ground station; and, located at said ground station, means for receiving said sub-carrier frequency signal, and means for deriving an indication of said altitude of said aircraft from said received sub-carrier frequency signal.

II-D. Telegraphy

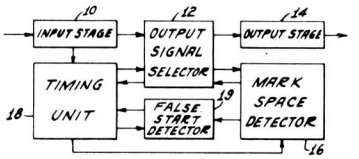
2,683,189
FREQUENCY-SHIFT CARRIER TELEGRAPH SYSTEM
John L. Hysko, Summit, N. J., Bernard Ostendorf, Jr., Stamford, Conn., and Wilton T. Rea, Manhasset, and Edward F. Watson, Larchmont, N. Y., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application July 29, 1950, Serial No. 176,724
13 Claims. (Cl. 178—66)



3. In a telegraph system including a transmission channel normally having no current flowing therein, intelligence signal generating means for producing marking and spacing conditions of intelligence signals, a source of signaling current to be impressed on said channel, means for modulating said source in accordance with the marking and spacing conditions of intelligence signals, means effective upon initiation of operation of said intelligence signal generating means for transmitting signaling current from said source to said channel, and delay means intervening said intelligence signal generating means and said modulating means for providing an interval of preliminary transmission from said signaling current source before modulation thereof by said intelligence signals.

2,685,613
CODE SIGNAL REGENERATOR
Anthony Liguori, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application January 14, 1952, Serial No. 266,386
The terminal fifteen years of the term of the patent to be granted has been disclaimed

15 Claims. (Cl. 178—70)



1. An electronic circuit arrangement for regenerating fixed length, mark/space, telegraph signals of the type wherein one signal element of each character is of different length than the other signal elements, including a pair of input terminals to which the signals as received are applied and a pair of output terminals from which said signals are available in regenerated form, including a mark/space detector having an input circuit coupled to said input terminals and an output circuit arranged to produce mark and space pulses in accordance with the nature of the signal elements applied to the input circuit, output signal selecting electronic switch circuit arranged to couple said output terminals selectively to said input terminals and to the output circuitry of said mark/space detector, an electronic timing control circuit arranged to be activated in response to the receipt of the first signal element of each character, an electronic output signal selecting switch control circuit coupled to said timing control circuit and said output signal selecting electronic switch circuit to cause said output signal selecting electronic switch circuit to couple said output circuit of the mark/space detector to said output terminals when said timing control circuit is active and to couple said input terminals to said output terminals for direct operation when said timing control circuit is idle, said output signal selecting switch control circuit incorporating a time delay whereby said coupling for direct operation is accomplished only after a prearranged time period after said timing control circuit is inactivated, a pulse lengthening circuit interposed in said direct connections between said input and said output terminals to extend the spacing between mark pulses as received at said input terminals, a further mark/space detector circuit arranged to determine the nature of said first signal element only and to inactivate said timing control circuit when said first signal element is of nature oppo-

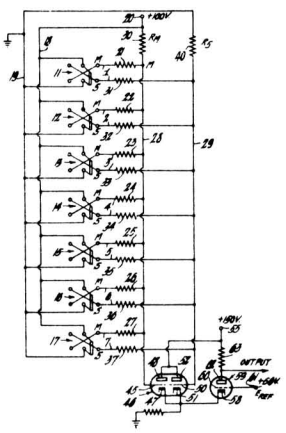
site to that to which said timing control circuit is arranged to respond, a circuit connection connecting said input terminals to said further mark/space detector circuit to nullify action thereof when the input signal element under consideration is of said opposite nature at the time of detection, another electronic switch connected across said output terminals for indicating failure of said timing control circuit and timing circuit failure switch control circuit incorporating another time delay connected between said timing control circuit and said other electronic switch and arranged to close said other electronic switch after another predetermined time period after said timing control circuit is activated, said other predetermined time period being greater than the time duration of one character of said incoming signal, a further electronic switch connected across said output terminals for indicating mark/space detecting failure and a detector failure switch control circuit having a time delay connected between said timing control circuit and said further electronic switch and arranged to close said further electronic switch after a prearranged time period after said timing control circuit is activated, said prearranged time period being greater than the duration of one signal element of said incoming signal, and a timing wave generating circuit coupled to said timing control circuit to produce a timing wave having a number of cycles equal to the number of elements in each signal character in response to the activation of said timing control circuit, said timing control circuit being inactivated on the last cycle of said timing wave.

2,688,050
VALIDITY CHECKING CIRCUIT FOR CODED SIGNALS

James S. Harris, Old Greenwich, Conn., assignor to Radio Corporation of America, a corporation of Delaware

Application July 20, 1953, Serial No. 368,973
7 Claims. (Cl. 178—23)

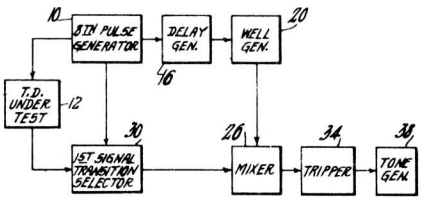
1. A signal analyzing circuit comprising means for applying plurality of simultaneous mark and space signals on an equal plurality of lines each including a mark and a space terminal, a mark being indicated on a line by a predetermined potential on the mark terminal and a reference potential on the space terminal, and a space being indicated on a line by said predetermined potential on the space terminal and said reference potential on the mark terminal, a mark bus and a space bus, equal value resistors individually connecting said mark terminals to said mark bus and connecting said space terminals to said space bus, a first source of a predetermined potential and a mark balancing resistor connecting said source to said mark bus, a second source of potential and a space balancing resistor connecting said second source to said space bus, said potential sources and balancing resistors having values which cause equal currents to flow through said equal value resistors solely when a predetermined ratio of mark and space signals is applied to said lines, and a potential comparison circuit coupled to said buses.



2,688,051
TIME MEASURING DEVICE FOR TELEGRAPH APPARATUS

Anthony Liguori, Hackensack, and Eugene Richard Shenk, Bergenfield, N. J., and Hajime James Kishi, New York, N. Y., assignors to Radio Corporation of America, a corporation of Delaware

Application March 31, 1953, Serial No. 345,842
The terminal 15 years of the term of the patent to be granted has been disclaimed
9 Claims. (Cl. 178—69)



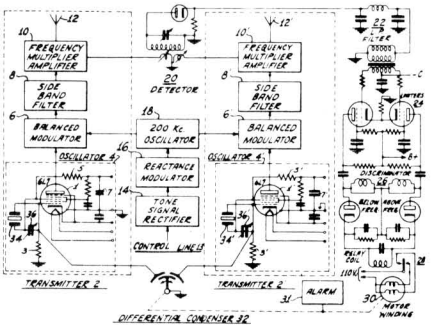
1. A circuit arrangement for measuring the operating time of telegraph transmitting distributors of the type requiring an externally generated operating pulse, including means to generate a train of operating pulses, means to apply said operating pulses to the telegraph transmitting distributor under test, means responsive to application of said operating pulse train to derive a train of pulses delayed in time with respect to said operating pulses, means to vary the delay time, means responsive to said delayed pulses to produce pulses of extensive duration, means to vary the duration of said produced pulses, an input circuit, means to apply signal transitions from said distributor under test to said input circuit, means coupled to said operating pulse generator and to said input circuit to select the first transition after application of the corresponding operating pulse and form corresponding transition pulses, means to combine said corresponding transition pulses and said produced pulses, and means to indicate the time relationships between said corresponding transition pulses and said produced pulses.

2,688,074
FREQUENCY CONTROL SYSTEM FOR DIVERSITY TRANSMITTERS

Hallan E. Goldstine, Port Jefferson Station, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

Application June 15, 1951, Serial No. 231,881
The terminal 15 years of the term of the patent to be granted has been disclaimed

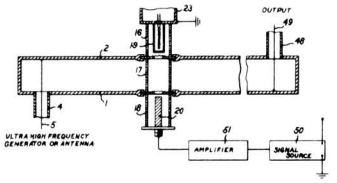
3 Claims. (Cl. 250—17)



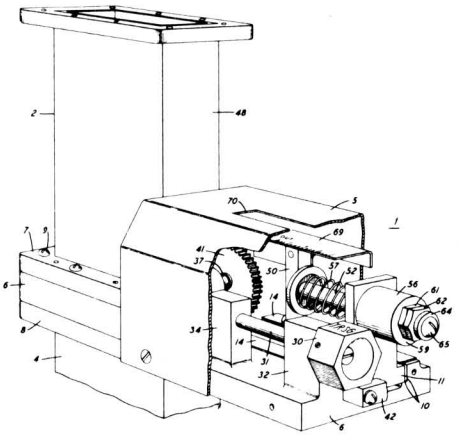
3. In a radio transmitting system, two radio frequency oscillators operating at different frequencies, separate transmitters excited by the respective oscillators for radiating energy derived from such oscillators, a modulator in each of said transmitters for modulating the outputs of each respective oscillator, means for supplying a common modulating signal to each of said modulators, means for mixing the outputs of both oscillators to produce a beat frequency, a differential condenser coupled to both oscillators to vary the frequencies thereof oppositely, and means responsive to variations of said beat frequency from a predetermined value in the audio frequency range to operate said condenser.

II-E. Other Apparatus (includes Wave Guides, etc.)

2,683,251
HIGH-FREQUENCY ELECTROMAGNETIC WAVE TRANSMISSION SYSTEM
Simon Ramo, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application August 13, 1942, Serial No. 454,710
13 Claims. (Cl. 332—25)



11. In combination, a guide for transmitting electromagnetic waves dielectrically including a hollow-pipe type member, means for establishing electromagnetic waves in said member at a frequency close to but above cutoff, discharge-pervious means forming an electrically continuous part of the wall structure of said member, means for producing an electronic discharge extending through said discharge-pervious means and within said member in a region traversed by said waves and means for controlling said electronic discharge to vary the propagation of said waves.



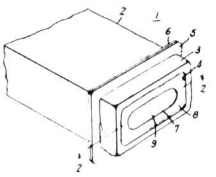
across said guide to effect closure thereof, an impedance element disposed movably in said guide, means for traversing the shutter, means for moving the impedance element, connecting means between the traversing and the moving means for coordinating the traversal of said shutter and the movement of said impedance element, and means for adjusting the position of said impedance element when said shutter is not across said guide independently of the position of said impedance element when said shutter is across said guide.

2,683,255
SWITCH ATTENUATOR FOR WAVE GUIDES
Paul V. Koos, Manhasset, and Louis A. Oberle, Floral Park, N. Y., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application May 16, 1950, Serial No. 162,312
10 Claims. (Cl. 333—81)

1. In combination with a wave guide, means for controlling the flow of electromagnetic energy therethrough, comprising a shutter traversable

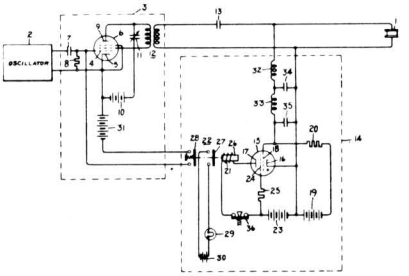
2,683,863
RESONANT WINDOW AND METHOD OF MAKING SAME
Truman P. Curtis, Scotia, N. Y., assignor to General Electric Company, a corporation of New York
Application April 2, 1951, Serial No. 218,840
3 Claims. (Cl. 333—98)

1. A resonant window for high frequency apparatus comprising a window member of dielectric material, a metallic coating on one face of



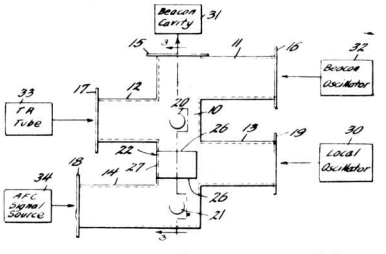
said window member defining a resonant opening, a metal frame joined to said member and having an opening registering with and substantially larger than the opening defined by said metallic coating.

2,683,866
PIEZOELECTRIC CRYSTAL PROTECTIVE DEVICE
Richard Warren Samsel, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application October 1, 1945, Serial No. 619,723
9 Claims. (Cl. 340—10)



1. An electroacoustic transmitting apparatus comprising an electronic oscillation generator, a piezoelectric crystal transducer, means connecting said generator to energize said transducer and produce sound vibrations in the medium surrounding said transducer, means for applying a direct current voltage across said crystal, and means responsive to the passage of direct current through said crystal for interrupting the supply of energy from said oscillator to said crystal.

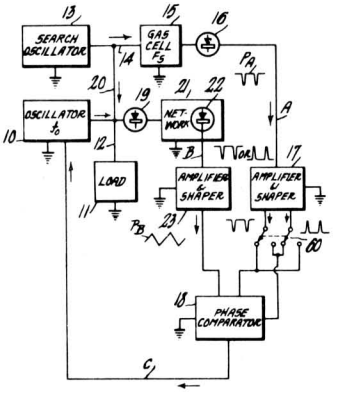
2,686,260
DESIGN FOR RADAR-AUTOMATIC-FREQUENCY CONTROL MIXER
Howard H. Arnold, Winston-Salem, N. C., assignor to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York
Application December 20, 1950, Serial No. 201,770
4 Claims. (Cl. 250—20)



1. A hollow rectangular wave guide assembly comprising a main wave guide, first and second mixers longitudinally spaced and mounted on and extending through a top wall of the main wave guide, a first wave guide branch extending from a first side wall of said main wave guide and between said first and second mixers to feed oscillator energy thereto, a second wave guide branch extending from a second side wall of the main wave guide and in alignment with the first mixer to feed oscillatory energy thereto, a third wave guide branch extending from said second side wall in alignment with said second mixer to feed oscillatory energy thereto, a fourth wave guide branch extending from said first side wall adjacent said first mixer to feed oscillatory energy thereto, and a terminated wave guide stub tending through said top wall of the main wave guide between said first and second mixers to prevent energy coupling therebetween while permitting energy flow to said mixers from the first branch.

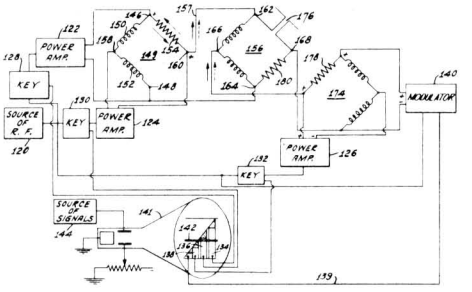
2,686,897
COMPENSATED TWO-CHANNEL SERVO SYSTEM
Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 30, 1949, Serial No. 135,857
8 Claims. (Cl. 324—87)

1. The combination with a two-channel frequency-stabilizing servo-system one channel producing push-pull and the other push-push signals, said system being of type in which a phase-comparator includes rectifier means producing a frequency-control voltage varying with and having a sensing responsive to the phase relation of error pulses respectively impressed one in push-pull and one in push-push by said channels upon said comparator, and an arrangement for minimizing frequency error due to dissimilarities



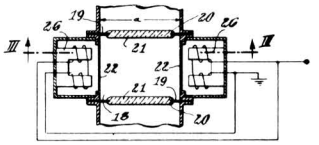
between nominally similar components of said channels said arrangement comprising first switching means for reversing the connections of one of said channels to the phase-comparator and second switching means for concurrently reversing the poling of said rectifier means, and means for repetitively actuating said switching means simultaneously, whereby the average value of said frequency-control voltage is insensitive to channel unbalance.

2,686,899
SIGNAL TRANSMISSION
George C. Sziklai and Philip T. Smith, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application March 1, 1950, Serial No. 146,946
13 Claims. (Cl. 332—9)



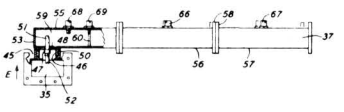
1. A transmitter comprising in combination a plurality of sources of high frequency voltage waves, a source of signals that vary in accordance with a given intelligence, a level sorter to which said signals are applied, and means for operating a number of said power generating devices in proportion to the output of said level sorter.

2,686,900
IONIC SWITCHING TUBE
William W. Rigrod, Bloomfield, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application August 29, 1951, Serial No. 244,229
5 Claims. (Cl. 333—13)



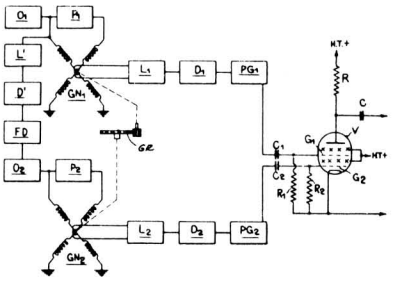
1. An ionic switch tube comprising a gas-tight enclosure having a window for passage of an electromagnetic wave, said enclosure having a flexible wall portion and said enclosure having an ionizable gas therein pressure whereof may be varied by flexing said wall portion, and means external of and operatively associated with said flexible wall portion for flexing said wall portion and thereby vary the gas pressure within the enclosure.

2,686,902
MICROWAVE BRANCHING ARRANGEMENT
Le Roy C. Tillotson, Shrewsbury, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application July 24, 1950, Serial No. 175,530
30 Claims. (Cl. 333—73)



1. In combination, a first wave guide closed at one end, a second wave guide closed at one end, means for introducing electromagnetic waves of a selected frequency into one of said guides at the other end thereof, means for extracting said waves at the other end of the other of said guides, a shunt reactor in said second guide forming an end chamber therein, a coaxial transmission line coupling said chamber to said first guide at a distance from the closed end thereof approximately equal to an odd integral number of quarter wavelengths at said frequency, and a conducting element connected to the inner conductor of said coaxial line and extending into the electromagnetic field of said first guide to form a series reactor coupling said coaxial line to said first guide, the reactances of said reactors being substantially equal in magnitude at said frequency and the transmission path between said reactors having a phase shift such that said chamber, said coaxial line and said series reactor constitute a cavity resonator resonant at said frequency.

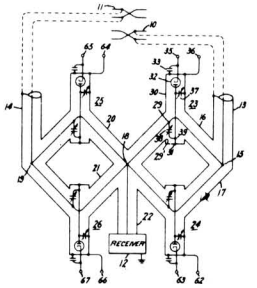
2,688,077
METHOD AND APPARATUS FOR THE CONTROL OF THE TIMING OF RECURRENT SIGNALS
Eric Lawrence Casling White, Iver, England, and Alan Dower Blumlein, deceased, late of Ealing, London, England, by Doreen Walker, executrix, Lanherne, Lescudjack, Penzance, Cornwall, England, assignors to Electric & Musical Industries Limited, Hayes, Middlesex, England, a company of Great Britain
Application January 11, 1946, Serial No. 640,596
In Great Britain December 13, 1939
Section 1, Public Law 690, August 8, 1946
Patent expires December 13, 1959
12 Claims. (Cl. 250—27)



9. Apparatus for producing a periodically recurring electrical pulse that is adjustable in phase or timing, said apparatus comprising a generator for producing a periodic electrical wave, a phase shifter through which said wave is passed to produce a periodic electrical wave that is adjustable in phase or timing, frequency divider means for producing a second periodic electrical wave having a frequency that is a submultiple of the frequency of said first wave, said frequency divider means being connected to receive said first wave from said generator whereby it is locked in with said generator, a phase shifter through which said submultiple wave is passed to produce a second wave that is adjustable in phase or timing, and means comprising a pulse selector tube to which said first and second adjustable waves are applied for passing only the portions of said first adjustable wave that exceed a certain amplitude and that occur simultaneously with portions of said second adjustable wave that exceed a certain amplitude.

2,688,699
RADIO FREQUENCY LOAD ALTERNATING SYSTEM
Michael E. Hiehle, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application May 3, 1943, Serial No. 485,443
5 Claims. (Cl. 250—33.53)

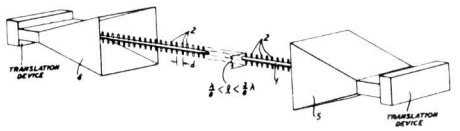
1. In combination, a radio input circuit, a pair of signal channels supplying high frequency oscillations thereto, and means for selectively connecting any one or both of said channels to said circuit and for maintaining the impedance presented to said circuit at a constant value for all of said connections, said means comprising a pair of parallel paths connected between each of said channels and said circuit, each of said paths having a length equal to a multiple of a quarter



wave length at the frequency of said oscillations and the first path of each of said pairs individually and the second paths of said pairs conjointly having a surge impedance substantially equal to the input impedance of said circuit, and means selectively to permit translation of signals over one of said first paths or both of said second paths and to prevent translation of signals over the remainder of said paths.

2,688,732
WAVE GUIDE
Winston E. Kock, Basking Ridge, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application May 5, 1949, Serial No. 91,573
4 Claims. (Cl. 333—95)

4. A low-loss wave guide for linearly polarized, free space electromagnetic waves comprising a longitudinal rod having a regular array of parallel



equispaced, symmetrical dipole elements having a spacing less than

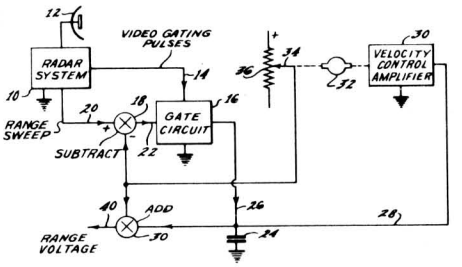
$$\frac{\lambda}{4}$$

and coupled to said waves to maintain the linear polarization thereof, the overall length of each element being in the range between

$$\frac{\lambda}{8} \text{ and } \frac{3\lambda}{8}$$

where λ is the free space wave length, and a source of waves polarized linearly with the electric vector parallel to said dipole elements, said source being coupled to said rod.

2,688,742
SMOOTH TRACKING OF INPUT VOLTAGE
John H. Sweer, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 31, 1951, Serial No. 239,574
14 Claims. (Cl. 340—345)



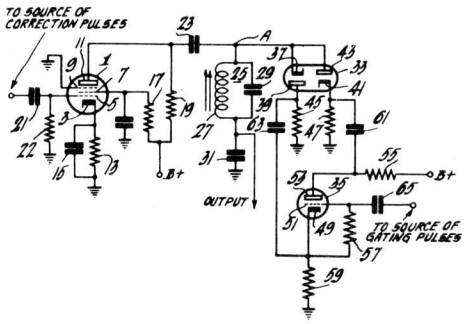
1. A system for deriving a tracking voltage from an input data voltage comprising means for deriving a controlled voltage the rate of change of which is directly proportional to a control voltage, means for subtracting the so derived controlled voltage, from the input data voltage and means for employing the difference voltage as the said control voltage, and means for adding the said controlled voltage to the difference voltage, whereby the sum voltage is an anticipatory tracking voltage.

SECTION III. CIRCUITS OF GENERAL APPLICATION

III-A. Amplifiers

2,683,803
METHOD OF AND MEANS FOR AMPLIFYING PULSES
Eugene O. Keizer, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 27, 1950, Serial No. 186,966
4 Claims. (Cl. 250—27)

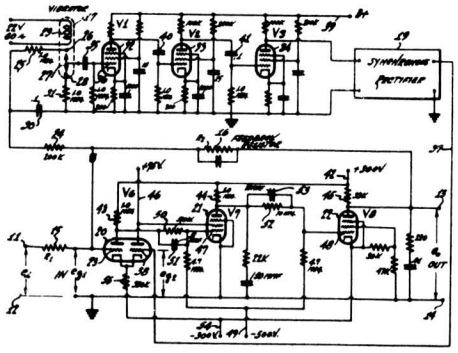
1. An electrical control comprising in combination a resonant circuit, a storage capacitor, an electrical clamp circuit, said clamp circuit



having an output circuit and a control connection, a plurality of points of potential fixed with respect to each other, said resonant circuit said storage capacitor and said electrical clamp circuit connected serially between two points of fixed potential, means for applying a first train of electrical pulses to said resonant circuit and means for applying a second train of electrical pulses to said clamp circuit control connection.

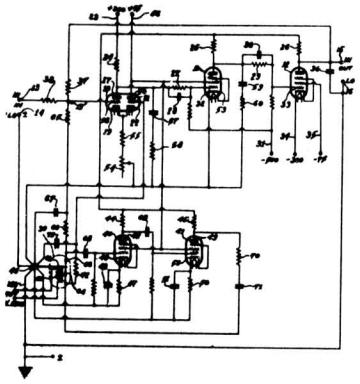
2,684,999
STABILIZED DIRECT CURRENT AMPLIFIER
Edwin A. Goldberg, Princeton Junction, and Jules Lehmann, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application April 28, 1949, Serial No. 90,072
7 Claims. (Cl. 179—171)

1. In a circuit for continuously and automatically stabilizing a D. C. amplifier of the type having first and second input circuits and an output circuit, the combination of means to apply a signal voltage to said first input circuit, inverse feedback means connected between said output circuit and said first input circuit whereby a D. C. error voltage is produced at said first input circuit, means coupled to said first input circuit and responsive to said D. C. error voltage at said first input circuit for converting said error voltage to a voltage varying in value at a predeter-



mined rate, an A. C. amplifier having its input connected to said converting means to amplify and to invert the polarity of said varying voltage, means independent of said converting means connected between the output of said A. C. amplifier and said second input circuit for synchronously rectifying the output of said A. C. amplifier and applying to said second input circuit a D. C. stabilizing voltage.

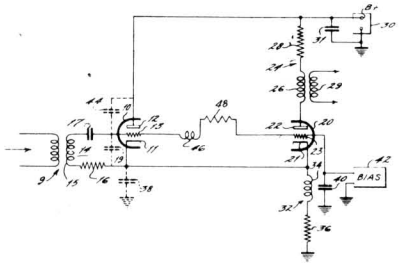
2,685,000
STABILIZED DIRECT CURRENT AMPLIFIER
Arthur W. Vance, Cranbury, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 29, 1949, Serial No. 90,358
7 Claims. (Cl. 179—171)



2. In a system providing stabilized operation of a D. C. amplifier of the type having first and second input circuits and an output circuit and having an inverse feedback connection between said output circuit and one of said input circuits, the combination with said D. C. amplifier of an A. C. amplifier having an input circuit and an output circuit, a vibrator having a pair of fixed contacts and a movable contact arranged to engage said fixed contacts alternately, a circuit connecting said first input circuit to said A. C. amplifier input circuit and including one of said fixed contacts, a circuit connecting said A. C. amplifier output circuit to said second input circuit and including the other of said fixed contacts, and a terminal common to all of said input and output circuits and connected to said movable contact.

2,686,232
AMPLIFIER
Nathaniel I. Korman, Merchantville, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 30, 1948, Serial No. 52,065
3 Claims. (Cl. 179—171)

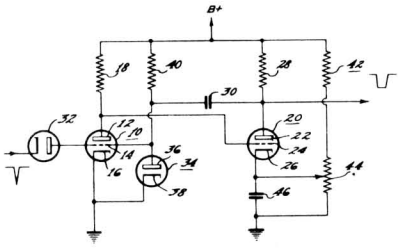
3. In a high frequency amplifier system for amplifying a band of signals, first and second amplifying devices each having a control electrode, an electron collecting electrode and an emissive electrode, an input circuit responsive to said band connected between said input electrode and said emissive electrode of said first device, a



load impedance circuit responsive to said band connected between said emissive electrode of said first device and a point of ground potential, said collecting electrode of said first device being energized by a source of direct current potential and effectively grounded for said band of signals, said first device being characterized by a substantial capacitance between said collecting and control electrodes that completes a degenerative feedback path between said load impedance circuit and said input circuit with a resultant gain-diminishing effect, said second device having its emissive electrode direct-connected to said emissive electrode of said first device, its control electrode effectively grounded for said band of signals and an output circuit connected to its collecting electrode, and inductive impedance means connected between said control electrodes of said devices and being of such value as to resonate with said capacitance to said band for substantially nullifying the gain diminishing effect of said capacitance.

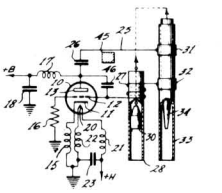
III-B. Oscillators (includes Multivibrators)

2,684,442
MULTIVIBRATOR
George W. Gray, Lambertville, and Arthur S. Jensen, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application July 31, 1951, Serial No. 239,508
The terminal fifteen years of the term of the patent to be granted has been disclaimed
4 Claims. (Cl. 250—27)



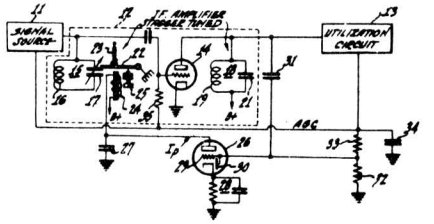
1. A slideback trigger circuit comprising first and second electron discharge tubes each having an anode, a cathode and a grid electrode, means coupling said first tube grid to said second tube anode, said second tube grid being directly connected to said first tube anode, a first anode load resistor connected to said first tube anode, a second anode load resistor connected to said second tube anode, means to bias said first tube grid to maintain said first tube conducting when said slideback trigger circuit is in standby condition, means to apply a bias to said second tube cathode to maintain said second tube non-conducting when said slideback trigger circuit is in a standby condition, means to apply a pulse to said first tube grid to transfer conduction from said first to said second tube, the last named condition of conduction being reversed after a time determined by the time constant of said means coupling said first tube grid with said second tube anode, and means to derive an output from said second tube anode, said means to bias said first tube grid including a rectifier having an anode and cathode, said rectifier anode being connected to said first tube grid, said rectifier cathode being connected to said first tube cathode, a resistor connected to said first tube grid, and means to apply a positive voltage to said rectifier anode through said resistor.

2,686,879
WIDE RANGE ULTRAHIGH-FREQUENCY OSCILLATOR
Wen Yuan Pan and Charles W. Wittenburg, Collingswood, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application October 29, 1951, Serial No. 253,648
9 Claims. (Cl. 250—40)



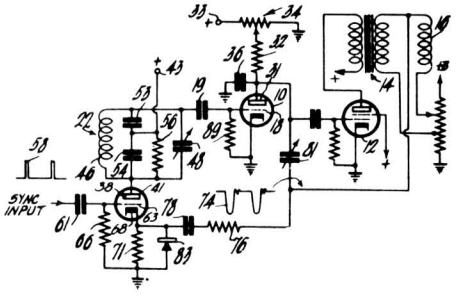
1. A resonant circuit structure comprising a conductor, an inductor having terminals, two conductive capacitance members disposed in spaced relationship to each other, one member being in electrical contact with one end of said conductor, the other member being in electrical contact with one terminal of said inductor, a first conductive tuning element movable with respect to said two capacitance members and electrically insulated therefrom to provide effectively a variable capacitance between said element and said members, and a second conductive tuning element movable with respect to said inductor to vary its inductance, thereby to provide a series resonant circuit tunable over a predetermined portion of the U. H. F. range.

2,685,001
EXTENDED AUTOMATIC GAIN CONTROL SYSTEM
Francis J. Darke, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application March 29, 1950, Serial No. 152,664
4 Claims. (Cl. 179—171)



1. Signal amplification apparatus comprising a signal-amplifying stage including an amplifying device and two circuits associated therewith tuned normally for resonance substantially at the same predetermined frequency, whereby to provide said stage with a relatively narrow frequency pass band, means responsive to a predetermined range of signal strength variations to vary the resonance frequency of one of said circuits, whereby to provide said stage with a frequency pass band having a width varying with signal strength variations, and additional means responsive to a different range of signal strength variations to vary the gain of said amplifying device.

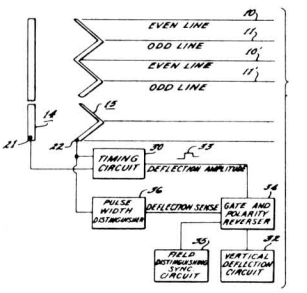
2,685,033
BEAM DEFLECTION CONTROL FOR CATHODE-RAY DEVICES
Philip E. Volz, Florham Park, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application January 2,1951, Serial No. 203,820
5 Claims. (Cl. 250—36)



1. A phase control system for electrical apparatus comprising an oscillatory circuit, a phase comparison device comprising a tube having a cathode, an anode, and a control electrode, said oscillatory circuit being included in the anode circuit of said tube, means for deriving pulses in step with said electrical apparatus, means to apply said pulses to said cathode, means to apply controlling pulses to said control electrode, means for driving said electrical apparatus comprising a tube serving as a sawtooth wave generator, a condenser, a resistor through which said condenser is charged, means whereby said second named tube serves to discharge said condenser, and coupling means for coupling said oscillatory circuit to said second named tube for initiating operation of said driving means.

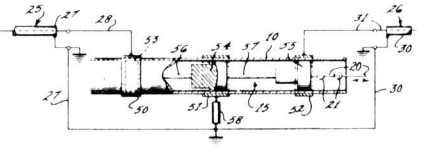
2,685,661
CATHODE-RAY BEAM DEFLECTION
Loy E. Barton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 25, 1951, Serial No. 248,256
12 Claims. (Cl. 315—21)

1. In a deflection system, a cathode ray device containing a raster area and a control area distinct from said raster area, said areas being scanned by the cathode ray in a first direction in fixed lines extending through both areas and in a second direction in fields, said control area comprising a pair of separated surfaces extending in a generally perpendicular direction to said lines, the first of said pair of surfaces having a bound-



ary thereof varying in spacing with respect to said second surface such that predetermined spacing variations correspond to desired paths of cathode ray beam travel, and beam positioning circuits responsive to electron bombardment on said surfaces to control the position of the cathode ray beam with respect to said lines.

2,686,903
TUNABLE ULTRAHIGH-FREQUENCY BAND PASS FILTERS
Wen Yuan Pan, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application May 29, 1951, Serial No. 228,892
11 Claims. (Cl. 333—73)



1. A tunable filter structure for UHF signals comprising a first, a second and a third conductive capacitance member spaced in fixed relation to each other and electrically insulated from each other, a conductive tuning element adapted to

move with respect to said members and electrically insulated therefrom, said element having at least two portions cooperating with said members and shaped to vary the capacitance between said members and said portions of the tuning element upon relative movement of said capacitance members, means providing a conductive connection between said portions having inductance, and a first, a second and a third conductor connected individually to said first, second and third members, whereby the capacitance provided between a predetermined one of said members and its associated portion of the tuning element and the inductance associated therewith provide high signal attenuation at a predetermined variable frequency.

2,687,513

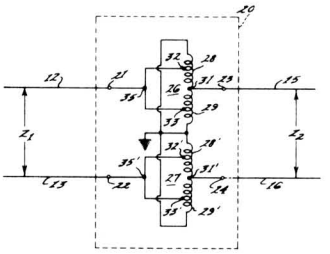
IMPEDANCE TRANSFORMATION NETWORK

Nils E. Lindenblad, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 18, 1952, Serial No. 277,332

The terminal 15 years of the term of the patent to be granted has been disclaimed

9 Claims. (Cl. 333—32)



5. An impedance matching network having four terminals adapted to be connected to respective portions of a transmission line circuit which operate at different impedance levels, comprising an auto-transformer type arrangement of two coils each having two substantially coaxial windings connected in opposed inductive relation to a center-tap, the center-taps being connected to two of said terminals, a pair of taps on the respective windings of each coil equally spaced from the associated center-tap, means connecting the equally spaced taps of each coil together to provide a junction, means connecting the junctions to two others of said terminals, and means connecting the ends of each coil to a point of reference potential, whereby said junctions and said center-taps respectively are balanced with respect to said point.

2,688,118

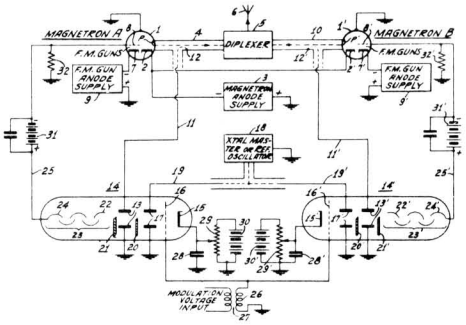
MODULATION SYSTEM

Russell R. Law, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application August 25, 1950, Serial No. 181,354

3 Claims. (Cl. 332—5)

1. An amplitude modulation system comprising: a pair of oscillators each provided with an electronic phase controlling means; a source of reference frequency; a pair of beam-type electronic devices each including means for producing an electron beam, two pairs of deflecting electrodes for said beam, a beam intensity control electrode, and an output electrode; means coupling one pair of deflecting electrodes in each de-



vice to the output of a corresponding oscillator; means coupling the other pair of deflecting electrodes in each device to the output of said source; means connecting the output electrode of each device to a corresponding one of said oscillators to cause the device beam current to electronically control the phase of its corresponding oscillator; means for applying a modulating signal to the two intensity control electrodes; and means for combining the outputs of said oscillators.

2,688,693

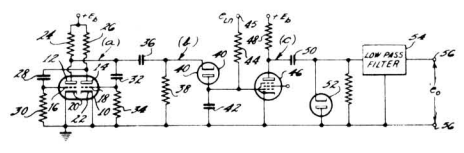
ELECTRON TUBE CIRCUIT FOR SIMULATING PHOTOGRAPHIC PROCESS

Harold E. Haynes, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application September 29, 1951, Serial No. 248,958

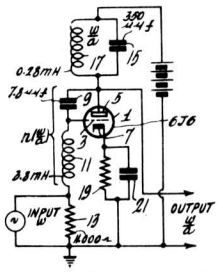
10 Claims. (Cl. 250—27)

1. A circuit for simulating a photographic process, wherein a fluctuating input voltage is converted to an output voltage which is approximately proportional to the reciprocal of said input voltage, comprising, in combination, means to generate voltage pulses at a frequency higher than the highest frequency component of said input voltage, means to store unidirectional pulses of said voltage pulses, means to discharge said



storage means at a rate substantially proportional to the amplitude of said input voltage, said discharge means including an input terminal for receiving said input voltage, and a resistor coupling said input terminal to said pulse store means, means including an electron tube responsive to a predetermined potential of said storage means for producing said output voltage and means for removing frequency components of said output voltage which are above the maximum input voltage frequency.

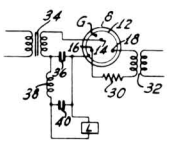
2,688,701
SIGNAL FREQUENCY DIVIDER
Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application January 22, 1951, Serial No. 207,187
7 Claims. (Cl. 250—36)



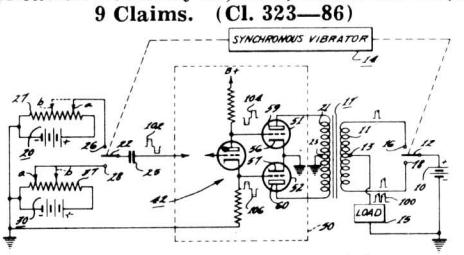
1. A system for obtaining a desired sub-multiple frequency signal output from an input signal of given frequency comprising a non-linear amplifying means having cathode, anode, and control electrodes, an output circuit connected to said anode electrode, said output circuit being tuned to said desired sub-multiple frequency, a signal input circuit connected between said control and cathode electrodes to receive said input signal, a feedback circuit connected between said anode and control electrodes, said feedback and input circuits being connected and tuned to a selected harmonic of said desired sub-multiple frequency, whereby a selected harmonic of said desired sub-multiple output signal frequency is fed back from said output circuit to said input circuit and beats with said input signal thereby generating a modulation frequency equal to and sustaining said output signal frequency.

2,688,713
RECTIFIER TUBE
Louis Malter, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 30, 1952, Serial No. 312,348
10 Claims. (Cl. 315—261)

1. Rectifier apparatus comprising a gas discharge device, said gas discharge device comprising an envelope containing an ionizable medium, a cathode and an anode in said envelope defining a main current path, means for forming and maintaining a plasma substantially throughout said path including at least one auxiliary thermionic cathode in said envelope and a source of alternating current potential, and said auxiliary cathode being directly connected electrically solely to said source.

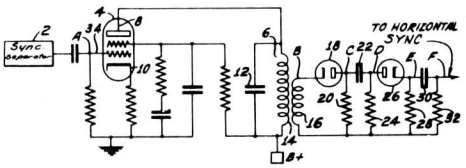


2,688,722
DIRECT CURRENT CONTROL SYSTEM
Ted E. Dunn, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 29, 1952, Serial No. 274,227
9 Claims. (Cl. 323—86)



1. A D. C. control system comprising a transformer having a first and a second winding each having two ends and a center tap, means for alternately applying a D. C. voltage to the ends of the first winding of said transformer, means for connecting a load in series with said first winding center tap and said D. C. voltage applying means, and means connected across said second winding controllable, as desired, to vary the current through said second winding such that the voltage induced therefrom in said first winding varies the amount of voltage applied to said load by a desired amount.

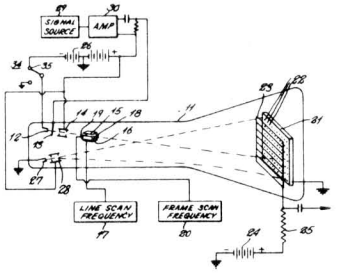
2,689,299
PULSE SELECTOR CIRCUIT
Earl I. Anderson, Manhasset, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application May 7, 1949, Serial No. 91,963
5 Claims. (Cl. 250—27)



1. A selector circuit for supplying pulses at regular intervals in response to a train of synchronizing pulses comprising an electron discharge device having at least a plate, a grid, and a cathode, a coupling circuit in circuit relationship with said grid, a parallel tuned circuit having a coil and a condenser, a source of direct potential, said source and said tuned circuit being connected in series with said plate and cathode, a winding, a diode and a first resistor connected in series so as to form a first loop, said winding being inductively coupled to said coil, and a second loop formed by a condenser and a second resistor connected in series parallel relationship with said first resistor.

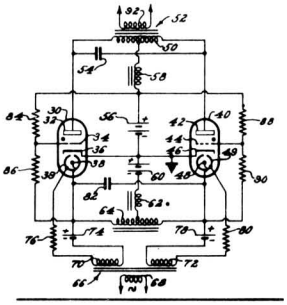
2,689,301
ARRANGEMENT FOR STORING INTELLIGENCE SIGNALS ELECTRONICALLY
Albert M. Skellett, Madison, N. J., assignor to National Union Radio Corporation, Newark, N. J., a corporation of Delaware
Application October 31, 1947, Serial No. 783,272
7 Claims. (Cl. 250—27)

1. A signal storage arrangement comprising a pair of electron guns to develop two separate electron streams, a member mounted for bombardment by said streams, means to sig-



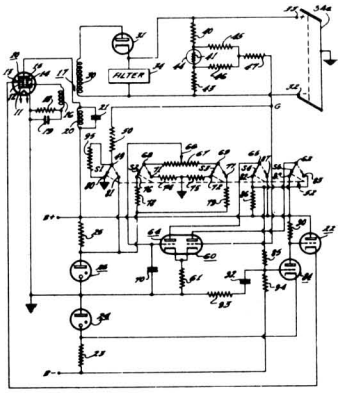
nal modulate one stream while allowing the other stream to bombard said member continuously, said member having a surface which emits secondary electrons when bombarded with primary electrons from said stream, means responsive to one signal condition at said modulating means to cause the first stream to bombard said member so that it assumes a stable positive potential at which the ratio of primary to secondary electrons is substantially unity, the last-mentioned means being responsive to another signal condition to cause the first stream to bombard said member so that it assumes a stable potential lower than the first-mentioned stable potential and also at which the ratio of primary to secondary electrons is substantially unity, means to arrange the bombarding velocity of the electrons from the other stream to maintain said member at the stable potential which has been determined by the first stream, and means to interrupt said other stream to cause said member to assume ground potential.

2,689,325
INVERTER CIRCUIT
Edward O. Johnson and William M. Webster, Jr., Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application October 31, 1952, Serial No. 317,964
7 Claims. (Cl. 321—35)



1. Apparatus for converting D.-C. energy into A.-C. energy comprising a pair of gas tubes each having an anode, a grid, a main cathode, an auxiliary cathode, and a constricting electrode, output means coupled to said anodes, means to apply a first source of unidirectional voltage between said anodes and said main cathodes, means to apply a second source of unidirectional voltage between said main cathodes and said auxiliary cathodes, means connected between the auxiliary cathode and the constricting electrode of each of said tubes to fire said tubes alternately, a capacitor connected between said auxiliary cathodes, and grid bias means for the grid of each of said tubes comprising a pair of voltage dividers each connected in series with said first and second sources, and means connecting each of said grids to a point on a separate one of said voltage dividers respectively.

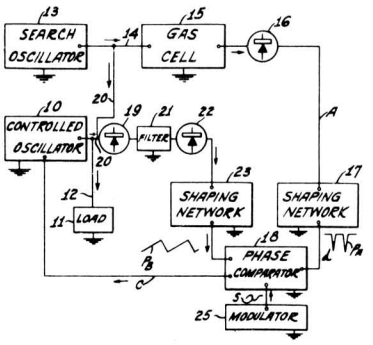
2,690,534
REVERSIBLE POLARITY REGULATED RADIO-FREQUENCY POWER SUPPLY
Jerome Kurshan, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 1, 1951, Serial No. 259,456
The terminal 15 years of the term of the patent to be granted has been disclaimed
10 Claims. (Cl. 321—2)



1. A power supply system comprising, in combination, a power circuit having two voltage output terminals, either one of which terminals may be grounded to produce a voltage output of selected polarity relative to ground, a regulating circuit to regulate said voltage output, switching means to selectively couple said regulating circuit to said power circuit in accordance with a selected voltage output polarity, means to feed back a sample of the output voltage to said regulating circuit to regulate said power supply, and said switching means comprising means to maintain said sample voltage at substantially the same fraction of said output voltage and at the same polarity with respect to ground regardless of which one of the output terminals is grounded.

2,690,538
FREQUENCY-STABILIZING AND FREQUENCY-MODULATING SYSTEM FOR OSCILLATORS
Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 29, 1949, Serial No. 135,780
8 Claims. (Cl. 332—19)

1. An arrangement for frequency-modulating and frequency-stabilizing an oscillator system including an electronic tube having an electrode whose potential affects the oscillator frequency which comprises means for producing two series

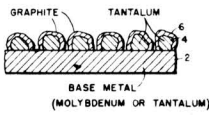


of simultaneous constant-amplitude pulses jointly containing frequency-error information, means for deriving from said pulses a control potential applied to said electrode comprising a phase-comparator including rectifier means and a smoothing filter, said phase-comparator having two input circuits to which said two series of constant amplitude pulses are separately applied, and means for continuously injecting the modulating signal for said oscillator into at least one input circuit of said phase-comparator in advance of said smoothing filter whereby the magnitude of said control potential varies both in accordance with variations of the phase-relation between the pulses of said two series and with the modulation.

SECTION IV. TUBES

IV-A. Receiving

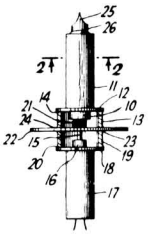
2,683,671
LOW PRIMARY AND SECONDARY ELECTRON EMISSION SURFACE
John H. Findlay, Upper Montclair, N. J., and Dewey D. Knowles, Lowman, N. Y., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 17, 1952, Serial No. 299,374
2 Claims. (Cl. 117—26)



1. An electronic electrode comprising: a metallic supporting element, a plurality of small particles of tantalum powder fastened to said element, and a coating of graphite on the exposed surfaces of said particles.

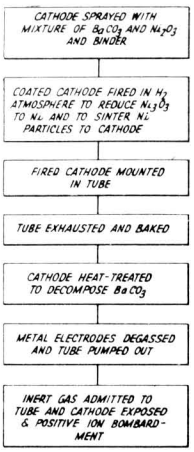
2,683,835
ELECTRON TUBE STRUCTURE
Norman S. Freedman, Irvington, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 19, 1949, Serial No. 77,334
1 Claim. (Cl. 313—285)

An ultra high frequency electron tube having a tubular metal member comprising an electrode support and lead-in, said member having its inner walls machined to relatively close tolerances for accommodating an electrode in a snug fit engagement, said member comprising a core of an easily machined steel having relatively long and narrow slag line spaces extending normal to and communicating with the surface of said inner walls, the transverse dimensions of said spaces being relatively small for impeding entrance thereto of silver during coating of said surface with silver, said member having a coating of nickel on said surface, a portion of said nickel coating being alloyed with the steel of said member to provide a steel-nickel interface between said surface and coating extending at least partly into said spaces for bridging the same and for providing a smooth and continuous nickel surface on the inner walls of said member, said nickel surface having a smooth coating of silver thereon, whereby said member is adapted to receive said electrode in a relatively smooth surface engagement for good operation of said electrode at ultra high frequencies.



2,686,735
CATHODE MATERIAL
Charles Hastings Thomas, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application January 3, 1951, Serial No. 204,149
4 Claims. (Cl. 117—33.26)

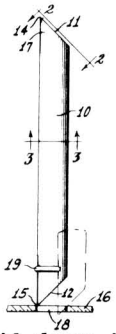
1. The method of preparing a cathode electrode for a discharge device, said method including the steps of, coating a metal base member with a mixture of barium carbonate and nickel oxide, the amount of nickel oxide being from 25% to 50% of the mixture, heating said coated base member in a hydrogen atmosphere to the



sintering temperature of nickel to reduce the nickel oxide of the coating to nickel and to sinter part of the nickel formed to the metal base member.

2,686,889
CATHODE SLEEVE
Frank John Pilas, Kearny, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 8, 1950, Serial No. 199,752
8 Claims. (Cl. 313—270)

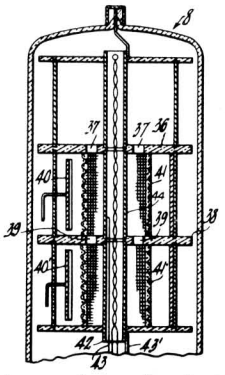
1. A cathode sleeve having a taper extending across one end thereof, said taper providing a leading end of said sleeve of less cross-sectional area than a cross-section of said sleeve, whereby registry between said end and a passageway for



snugly receiving said sleeve, is effected with increased facility.

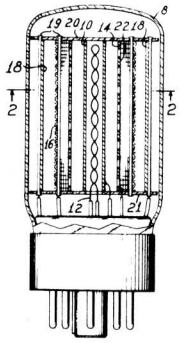
2,687,487
MULTIANODE GAS DISCHARGE DEVICE
William M. Webster, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 21, 1952, Serial No. 315,876
18 Claims. (Cl. 313—193)

1. A gas discharge device comprising, a sealed envelope having an ionizable medium therein, a plurality of spaced groups of electrodes in said envelope, a plurality of apertured elements in said envelope and one intermediate each of said groups, each of said groups and the adjacent apertured element defining a main region in said envelope there being a main region for each group, each of said groups including a thermionic cathode and a plurality of spaced apart anodes, said regions communicating with one another through said apertures, electrode means adjacent one of said regions for ionizing said medium and



producing a plasma in each of said regions, and an apertured element intermediate said electrode means and said adjacent one of said regions with the apertures opening into said region.

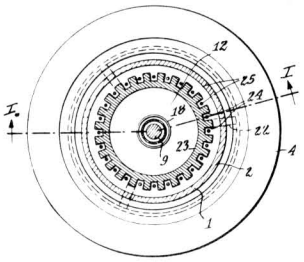
2,687,488
GAS TUBE CONSTRUCTION
Lawrence J. Giacoletto, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 23, 1952, Serial No. 316,425
10 Claims. (Cl. 313—195)



1. A gas discharge device, comprising a sealed envelope having an ionizable medium therein, a heater element, an array of electrodes including an electrode, an apertured indirectly heated thermionic cathode, a control electrode and an anode spaced in that order from said heater element and within said envelope.

IV-B. Transmitting

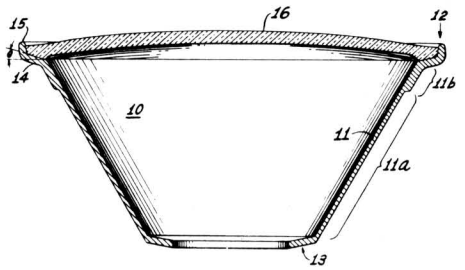
2,683,237
RADIO FREQUENCY TUBE WITH LOW INTERNAL IMPEDANCE
Carl H. Scullin, Florham Park, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application December 29, 1951, Serial No. 264,027
3 Claims. (Cl. 313—308)



1. An electrical discharge device comprising a cylindrical anode, a cathode constituted by a plurality of strands in a circular series coaxial with said cylindrical anode and inward therefrom, and a control electrode having portions thereof interposed between said strands whereby said electrode provides a plurality of parallel grooves each containing one of said strands, and each of said strands having a clearance from the said electrode portions that form the groove therefor less than the diameter of the strand.

IV-C. Cathode Ray and Photo-electric

2,682,963
METAL CONE FOR CATHODE-RAY TUBES
Richard Dale Faulkner, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application October 8, 1949, Serial No. 120,400
8 Claims. (Cl. 220—2.3)



8. A metal shell for a cathode ray tube envelope, said shell comprising as a unitary structure, a tubular mantle member including a large opening at one end and a smaller opening at the other end thereof and an axis of symmetry passing through said openings, said mantle portion having a substantially uniform wall thickness, a large flange at the large end of said shell extending outwardly from the outer surface of said shell at a small angle with the perpendicular to said axis of symmetry, said flange having a wall thickness greater than that of said mantle, said mantle portion also including a peripheral portion adjacent said flange having a thickness substantially equal to the thickness of said flange and directly attached to said flange, said peripheral mantle portion extending an appreciable distance from said flange.

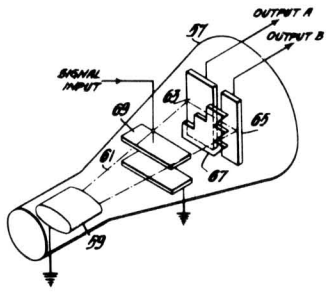
2,683,693
ZINC-MAGNESIUM OXIDE LUMINESCENT MATERIALS
Philip R. Celmer, Jr., Trenton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 14, 1951, Serial No. 210,978
14 Claims. (Cl. 252—301.6)

1. A luminescent material comprising magnesium oxide in solid solution in zinc oxide, the ratio of zinc oxide to magnesium oxide being within the range of 19:1 and 2:3, and including one of the elements selected from the class consisting of scandium, yttrium, lanthanum, and europium in activator proportions.

2,684,306
PRODUCTION OF FLUORESCENT SCREENS BY SETTLING MATERIALS FROM LIQUID SUSPENSIONS
Leslie Herculean Brewer, Twickenham, Vincent Arthur Stanley, London, and Ronald Puleston, Iver, England, assignors to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
No Drawing. Application September 30, 1948, Serial No. 52,134
Claims priority, application Great Britain October 9, 1947
3 Claims. (Cl. 117—33.5)

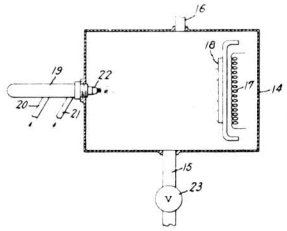
1. In a method of producing a luminescent screen, the steps of mixing phosphor particles, a silicate solution and a magnesium sulphate solution to form a liquid medium containing fine particles of magnesium silicate mixed with phosphor particles, and settling particles of phosphor on to a support from said liquid medium.

2,685,044
QUANTIZING TUBE
George A. Morton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 5, 1948, Serial No. 6,455
2 Claims. (Cl. 313—72)



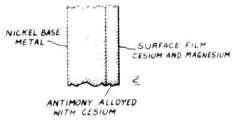
2. A quantizing tube comprising in combination, a plurality of electrically independent cathode ray target areas, a cathode ray gun, said gun arranged to produce a beam which is fan-like in form, and a cathode ray shield positioned between said target areas and said gun, said cathode ray shield having an edge with a step-like form and an edge with a sawtooth form, both forms of substantially equal frequency positioned in a plane parallel to the plane of said target areas, said step-like form edge positioned to shadow one of said target areas from said gun, said sawtooth form edge positioned to shadow another of said target areas from said gun, and means to deflect said beam in a direction perpendicular to its broadest dimension along said steps and along said sawtooth form.

2,685,530
METHOD OF PREPARING TRANSPARENT LUMINESCENT SCREENS
Dominic A. Cusano and Frank J. Studer, Schenectady, N. Y., assignors to General Electric Company, a corporation of New York
Application August 1, 1952, Serial No. 302,224
15 Claims. (Cl. 117—33.5)



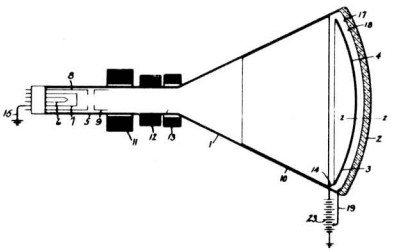
1. The method of making a transparent luminescent screen which comprises heating a base of transparent vitreous material to a temperature in the range of about 400 to 600° C. and introducing and in contact with said heated member a dispersion of the following ingredients: (1) a material selected from the class consisting of zinc, cadmium, zinc salt and cadmium salt, and mixtures thereof (2) a luminescence activator, and (3) a material selected from the class consisting of hydrogen sulfide, hydrogen selenide and mixtures thereof whereby chemical reaction occurs and a desired transparent screen is deposited on said base member.

2,685,531
LIGHT-SENSITIVE ELECTRON-EMISSIVE ELECTRODE
Sidney Rodda, New Barnet, England, assignor to General Electric Company, a corporation of New York
Application June 13, 1949, Serial No. 98,886
Claims priority, application Great Britain June 28, 1948
2 Claims. (Cl. 117—33.23)



1. A photo-emissive element comprising a base member having on a surface thereof a layer of material selected from the group consisting of antimony and bismuth, a layer thereon of a metal selected from the group consisting of cesium and rubidium and including a small quantity of a metal selected from the group consisting of magnesium and barium.

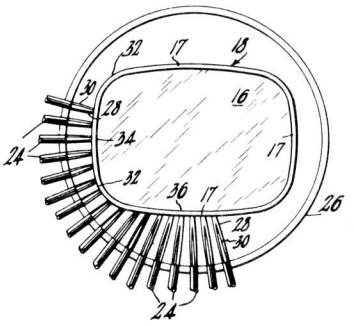
2,685,660
TELEVISION TUBE
Donald E. Norgaard, Scotia, N. Y., assignor to General Electric Company, a corporation of New York
Application April 7, 1951, Serial No. 219,813
7 Claims. (Cl. 315—12)



1. A cathode-ray tube comprising an envelope having a transparent end wall, an electron gun supported within said envelope for projecting electrons toward said end wall, a transparent conductive secondary electron-emitting coating on the inner surface of said end wall, and a perforated electrode positioned between said end wall and said gun, said electrode being adjacent said end wall and spaced therefrom and having a phosphor on its surface facing said end wall whereby secondarily emitted electrons from said coating may excite said phosphor.

2,686,390
SEALING A RECTANGULAR GLASS PANEL INTO A RECTANGULAR METAL FRAME
Bernard John Williams, Allegheny, N. Y., and Richard Henry Hughes, Lancaster, Pa., assignors to Radio Corporation of America, a corporation of Delaware
Application April 16, 1952, Serial No. 282,735
6 Claims. (Cl. 49—81)

1. The method of sealing a glass plate to a portion of a substantially rectangular metal frame, said method comprising the steps of,



arranging a plurality of burners around a circle having a diameter larger than a diagonal of said metal frame and so that the flames of said burners are directed radially toward the center of said circle, placing said rectangular metal frame with its axis perpendicular to the plane of said circle and at the center thereof and with said frame portion substantially in the plane of the flames of said burners, adjusting the flames of said burners so that the portions of said frame closest to said circle intercept the inner hotter portions of said flames and portions of said frame farther from said circle intercept cooler portions of said flames, placing said glass plate in contact with said metal frame portion, and rotating said metal frame around its axis at a constant speed to uniformly heat said frame portion and seal said glass plate thereto.

2,686,734

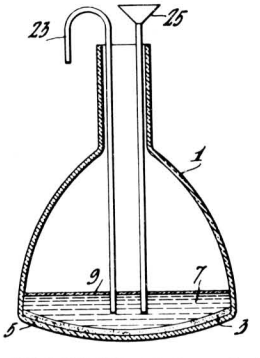
METHOD OF COATING WATER SENSITIVE PHOSPHOR SCREENS

Meier Sadowsky, Elkins Park, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application January 23, 1952, Serial No. 267,864

8 Claims. (Cl. 117—33.5)

1. A method of spreading a film of lacquer on a phosphor screen and then coating the screen, comprising the steps of depositing a liquid pool of high boiling point alcohol over said phosphor screen, said high boiling point alcohol being immiscible and non-reactive with said film of lacquer to be spread on said screen, spreading said film of lacquer over said pool, allowing said film to harden, replacing at least a part of said high boiling point alcohol with low boiling point alcohol immiscible with said lacquer, removing the contents of said pool and bringing said film into



contact with said screen and applying a coating on said film.

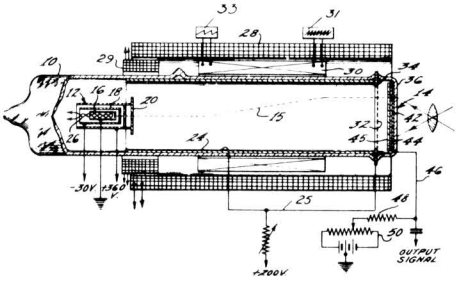
2,687,484

PHOTOCONDUCTIVE TARGET

Paul K. Weimer, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 24, 1951, Serial No. 212,550

12 Claims. (Cl. 313—65)



1. A photoconductive target electrode for a pickup tube, said electrode comprising, a conductive film, a thin film of photoconductive material on one surface of said conductive film and a normally insulating film on said film of photoconductive material, said normally insulating film being of a material having the property of possessing long range charge carriers.

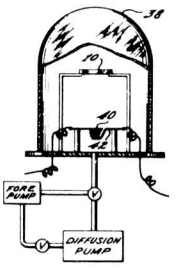
2,688,564

METHOD OF FORMING CADMIUM SULFIDE PHOTOCONDUCTIVE CELLS

Stanley V. Forgue, Cranbury, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application November 22, 1950, Serial No. 197,019

7 Claims. (Cl. 117—33.21)



1. The method of forming a photoconductive film on a supporting member, said method comprising the steps of, depositing a thin film of cadmium sulfide on said supporting member by sublimation, baking said cadmium sulfide film for more than five minutes in an atmosphere containing oxygen to increase the resistivity of the film in the dark.

2,689,188

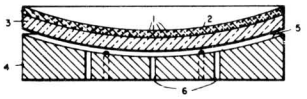
FLUORESCENT SCREEN OF A PHOSPHOR IN GLASS AND METHOD FOR PRODUCING SAME

Walter J. Hushley, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application December 12, 1950, Serial No. 200,368

4 Claims. (Cl. 117—23)

1. The method of forming a phosphor screen which comprises forming on a plate of soda-lime



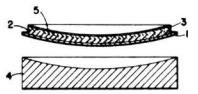
glass a mixture consisting of about equal weights of zinc sulphide and an embedding glass, said glass consisting essentially of 20% by weight silica, 3% alumina, 2% magnesia, 65% boric oxide, 2% lithium oxide, 5% sodium oxide and 3% potassium oxide, all said percentages being by weight, and heating said glass plate to about 680° C. for about half an hour.

2,689,190

FLUORESCENT SCREEN AND METHOD FOR FORMING SAME

Walter J. Hushley, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application December 5, 1951. Serial No. 260,007
6 Claims. (Cl. 117—33.5)



3. The method of forming a fluorescent screen which consists essentially of coating a backing plate with a layer of a fluorescent material having a melting point above 650° C., settling on the surface of said layer through a liquid selected from the group which consists of carbon tetrachloride, trichloroethylene and ether a thin layer of powdered glass formed by firing a mixture consisting by weight essentially of 60% to 70% B_2O_3, 15% to 25% SiO_2, 1% to 4% Al_2O_3, 1% to 3% MgO, and 7% to 15% of oxides of the alkali metals sodium, potassium and lithium, with sodium oxide forming about one-half, and potassium oxide and lithium oxide each about one quarter of said alkali oxides, and heating the resulting structure to about 600° C. in an atmosphere which is chemically inert to said plate and said layers.

2,689,191

FORMATION OF REFLECTING COATINGS

Leopold Pessel, Springfield Township, Montgomery County, Pa., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Application December 10, 1948, Serial No. 64,707
7 Claims. (Cl. 117—35)

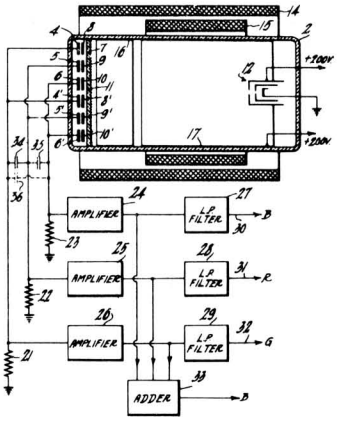
1. A process of depositing a mirror-like coating on a surface of a solid object comprising applying to said surface a solution consisting essentially of a coating material selected from the group consisting of non-saponifiable hydrocarbon resins and chlorinated hydrocarbon waxes in a volatile organic solvent, permitting said solvent to evaporate thereby depositing on said surface a film consisting essentially of said coating material, and then applying a metallic film over said first-mentioned film by the process of chemical deposition comprising reducing a solution of a metal salt with a solution of a reducing agent.

2,689,270

COLOR TELEVISION CAMERA

Paul K. Weimer, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application June 29, 1951, Serial No. 234,401
2 Claims. (Cl. 178—5.4)



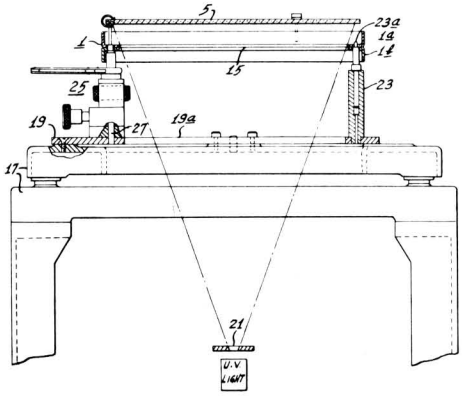
1. In a color television pickup system for developing image representative signals, the combination comprising a cathode-ray tube having an electron target structure including a plurality of conducting strips for simultaneously developing a plurality of output signals, the low frequency components of each of said output signals being essentially representative of respectively different component color variations in said image, the high frequency components of each of said output signals being essentially representative of brightness variations in said image, means for combining said output signals so as to provide a broad band brightness signal, a plurality of low pass filters, and means for applying each of said output signals to a respectively different one of said low pass filters so as to provide a plurality of respectively different component color signals.

2,689,779

ALIGNMENT-LIGHTHOUSE FOR COLOR-SCREENS, ETC.

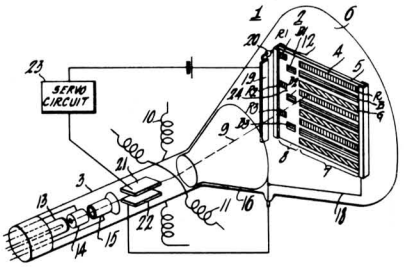
Albert C. Grimm, Lancaster, and Milton J. Grimes, Ephrata, Pa., assignors to Radio Corporation of America, a corporation of Delaware

Application July 15, 1953, Serial No. 368,198
6 Claims. (Cl. 316—29)



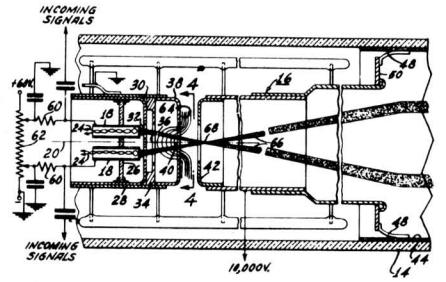
1. Apparatus for aligning the mosaic pattern on a screen-plate with the apertures of a foraminous element in a television screen-unit of the kind containing a plurality of adjustable supports capable of adjusting the position of said screen-plate with respect to said foraminous element, said apparatus comprising a base having an opening therein to permit the passage therethrough of light rays emanating from a point behind said opening, means disposed on said base about said opening for holding said screen-unit in a position whereat its foraminous element is caused to lie in a reference plane spaced a predetermined distance from said point and its screen-plate is illuminated by the pattern of light with which said light-rays are endowed by the presence of said foraminous element in their path, and means disposed on said base about said opening in a position to engage said adjustable screen-supports for selectively applying thereto independent forces capable of altering the spacing of said screen-plate with respect to said reference plane and the orientation of said screen-plate with respect to said pattern of light.

2,689,926
ELECTRON BEAM TUBES
Donald S. Bond, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 25, 1950, Serial No. 146,282
5 Claims. (Cl. 315—12)



1. The combination with an electron-beam tube of the type provided with horizontal and vertical beam-deflecting means and containing a target having discrete light-emissive and signal-generating areas upon which the beam may successively and repeatedly be directed by said horizontal and vertical beam-deflecting means, of auxiliary beam-deflecting, means disposed adjacent to the path of said beam for applying to said beam vernier deflecting forces derived from said signal-generating area of said target.

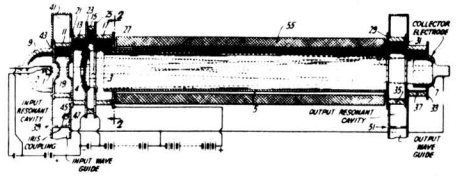
2,690,517
PLURAL BEAM ELECTRON GUN
Frederick Hermes Nicoll and Benjamin Kazan, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application September 30, 1952, Serial No. 312,298
11 Claims. (Cl. 313—70)



1. An electron discharge device comprising, means for producing a plurality of electron beams along respective paths having a common general direction, a target electrode mounted transversely to said beam paths, said beam producing means including electron emitting means, a control grid electrode and an accelerating electrode successively spaced between said electron emitting means and said target, said control grid electrode including a first grid plate adjacent to and closely spaced from said electron emitting means and having a plurality of apertures therethrough, said control grid electrode including a second grid plate having a single aperture therethrough and positioned between said first grid plate and said accelerating electrode.

IV-D. Klystrons, Magnetrons, etc.

2,684,453
GROWING WAVE ELECTRON DISCHARGE DEVICE
Clarence W. Hansell, Port Jefferson, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application March 26, 1949, Serial No. 83,697
9 Claims. (Cl. 315—6)

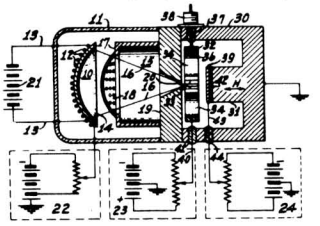


1. An electron discharge device comprising means for producing a first beam of electrons along a given beam path, means including a concave annular cathode coaxially surrounding said beam path for producing a convergent hollow second beam of electrons surrounding and intersecting said first beam, means for modulating at least one of said beams, and means for extracting electrical energy from said beams.

2,685,046
MAGNETRON

Karl Gerhard Hernqvist, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application November 1, 1949, Serial No. 124,810
12 Claims. (Cl. 315—4)

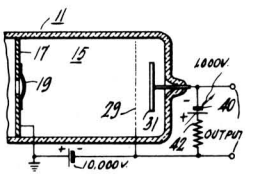


1. A magnetron comprising an anode having a plurality of anode segments supported in an annular row forming an interaction space between said segments about an axis, said space being open at one end providing an axial electron entrance thereto; an electron gun external to said space and mounted opposite said entrance to project a very dense beam of electrons into said space, said electron gun including a circular cathode spaced from said entrance and having a large area relative to the cross-sectional area of said interaction space for supplying a large area electron beam of relatively low density and electrostatic means forming part of the structure of said electron gun for concentrating said large area beam into a very dense beam of small cross-sectional area relative to the cross-sectional area of said space in the region of said entrance and for projecting said dense beam through said entrance into said interaction space; and means adjacent said anode for establishing an axial magnetic field within said interaction space and including magnetic material between said electron gun and said anode for shielding said electron gun from said magnetic field.

2,686,275
ART OF STORING OR DELAYING THE TRANSMISSION OF ELECTRICAL SIGNALS

Martin J. Cohen, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 31, 1951, Serial No. 218,680
9 Claims. (Cl. 315—10)

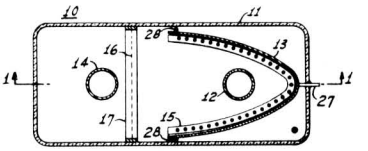


1. A storage device for electrical signals comprising, an envelope containing an ionizable medium at a pressure of the order of one atmosphere, a plurality of electrodes mounted to define the terminals of a path in said ionizable medium, means for creating a signal-modulated localized-discharge in said ionizable medium adjacent to one of said terminals, means for establishing a potential difference between said electrodes of an intensity and sign calculated to draw said localized-discharge in a substantially straight path away from its area of origin through said ionizable medium in the direction of said other terminal electrode, means including said other terminal electrode for deriving signals from said signal-modulated localized discharge, and at least one other electrode intermediate said terminals of said path.

2,687,485
GAS TUBE WITH REDUCED NOISE

Arthur L. Tirico, Belleville, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application April 2, 1951, Serial No. 218,744
12 Claims. (Cl. 313—71)

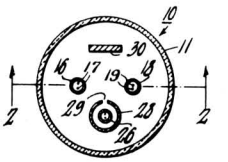


1. A gas amplifier tube comprising: a sealed envelope containing a gaseous filling; means for providing a load current through the tube comprising a main cathode and a main anode in cooperative spaced relationship; means including an auxiliary cathode for producing a current-stabilized ionizing discharge to provide a conductive plasma between said main cathode and anode; means adjacent said auxiliary cathode for forming the ionizing discharge into a directed stream having a constricted portion of smaller cross-sectional area than the rest of said stream, and means for constriction-modulating said stream to thereby modulate the plasma density.

2,688,710
GAS DISCHARGE SWITCHING DEVICE

William M. Webster, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

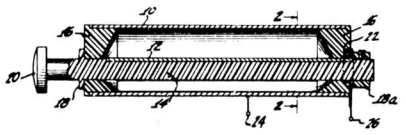
Application November 20, 1952, Serial No. 321,554
10 Claims. (Cl. 313—71)



1. A gas discharge device, comprising a sealed envelope having an ionizable medium therein, a pair of spaced apart thermionic cathodes defining a main load current path within said envelope, and a group of auxiliary electrodes including an auxiliary thermionic cathode surrounded by an apertured constricting electrode for producing an auxiliary discharge within said envelope.

2,690,520
CORONA DISCHARGE VOLTAGE REGULATOR
Morris D. Nelson, Bronx, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application September 27, 1950, Serial No. 187,121
The terminal 15 years of the term of the patent to be granted has been disclaimed
8 Claims. (Cl. 313—149)

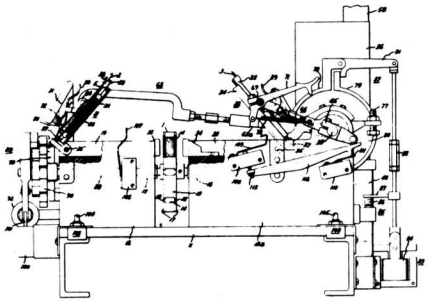
1. A corona discharge voltage regulating apparatus comprising a hollow elongated member having an electrically conductive surface, an elongated conductor mounted in spaced relation



to and substantially parallel to said conductive surface, said member and said conductor each having a central axis substantially parallel to each other, a gaseous medium between said conductive surface and said conductor, and means for rotating said conductor toward and away from said surface about an axis substantially parallel to and offset from the axes of said conductor and said member.

SECTION V. TRANSISTORS AND TRANSISTOR CIRCUITS

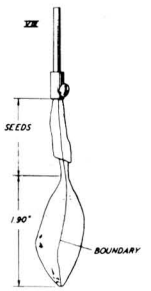
2,683,205
MACHINE FOR MAKING CRYSTAL RECTIFIERS AND THE LIKE
Basil J. Yanchenko, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application February 7, 1951, Serial No. 209,826
15 Claims. (Cl. 219—4)



15. In a machine for assembling an electrical device; a casing support; a work holder, said work holder including a guide member mounted for pivotal motion toward said support, a sliding member mounted on said guide member for motion therealong, and spring means interposed between said members for biasing said sliding member in a retracted position; reciprocating means pivotally connected to said sliding member for moving it toward said casing support; and a guide block mounted next to said casing support to intercept said sliding member in its pivotal motion and guide it in its motion toward said casing, whereby a terminal assembly carried by said work holder is inserted in a casing carried by said casing support.

2,683,676
PRODUCTION OF GERMANIUM RODS HAVING LONGITUDINAL CRYSTAL BOUNDARIES
John B. Little and Gordon K. Teal, Summit, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application January 13, 1950, Serial No. 138,354
3 Claims. (Cl. 148—1.5)

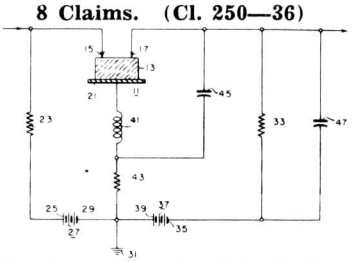
1. The method of preparing a rod of germanium composed of a plurality of crystals of different orientations with intervening longitudinal boundaries which comprises placing a mass of germanium in an inert atmosphere, replacing the inert atmosphere with a flow of a reducing atmosphere, melting the mass in the reducing atmosphere, maintaining the melt at a temperature above the melting point, placing a plurality of seed crystals of germanium having different crystalline orientations in longitudinal contact with each other, placing the adjoined seed crystals in immersed contact with



the melt, progressively lifting from the melt the seed crystals together with the molten germanium adherent thereto, and cooling to solidification the adherent germanium in an independent flow of the reducing atmosphere, the lifting being at a rate substantially the same as that of crystallization of the adherent germanium.

2,683,809
PULSE GENERATOR
Kenneth N. Fromm, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application February 28, 1950, Serial No. 146,716

8 Claims. (Cl. 250—36)



1. A pulse generator circuit including a device consisting of a semi-conducting material provided with one electrode having a relatively large contact area, and two electrodes having relatively small contact areas, means for applying a positive bias voltage to one of said electrodes having a small contact area, means for applying a negative bias voltage to said other electrode having a small contact area, an inductance connected from said electrode having a large contact area through a resistance to ground, and a capacitance connected from the junction of said inductance and resistance to said other electrode having a small contact area.

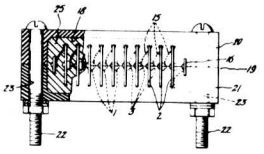
2,684,457

ASYMMETRICALLY CONDUCTIVE UNIT

Fred J. Lingel, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York

Application September 4, 1951, Serial No. 244,909

9 Claims. (Cl. 317—234)



1. An asymmetrically conductive unit comprising a plurality of semiconductor wafers, a plurality of conductive metal sheet members each secured to one face of one of said wafers and extending therefrom, a plurality of connecting terminals each secured to the opposite face of one of said wafers, a broad area rectification barrier being present within each of said wafers between the sheet member and the connecting terminal thereon, a housing of insulating material including two housing sections fastened in cooperative proximity and shaped to define an enclosed cavity and a plurality of oppositely located slot entrances to said cavity, said semiconductor wafers being positioned and secured in spaced relation within said cavity with said sheet members extending through and substantially closing said slot entrances to afford cooling of said wafers during operation, means for connecting said wafers in series combination with like polarity from the sheet member of one of said wafers to the connecting terminal of another of said wafers, and at least one electrical terminal connected to one end of said series combination and extending through said housing.

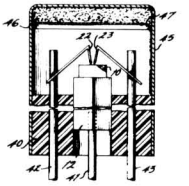
2,686,279

SEMICONDUCTOR DEVICE

Loy E. Barton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application September 28, 1949, Serial No. 118,428

7 Claims. (Cl. 317—235)



1. The process of preparing a semi-conductor device which comprises the steps of grinding a germanium crystal until a substantially plane surface is obtained, electrochemically stripping a layer of germanium from said surface until substantially all grinding marks have disappeared and thereby oxidizing the thus prepared surface, positioning two point electrodes on the thus prepared surface, connecting a large-area electrode to another surface of said crystal, passing pulses of direct electric current between one of said point electrodes and said large-area electrode, enclosing said crystal and said electrodes in a substantially air-tight housing, and inserting a desiccant in said housing.

3. A semi-conductor device comprising a semiconducting body obtained by electrochemically removing a layer from a surface of said body and oxidizing said surface, a plurality of electrodes in contact with said body, said electrodes including at least one point electrode in contact with said surface, said point electrode being formed by passing pulses of direct current between said point electrode and said body, a housing enclosing said body and said electrodes, and a desiccant in said housing.

2,685,728

TRANSLATING MATERIAL AND METHOD OF MANUFACTURE

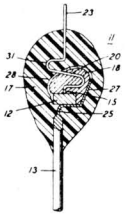
Russell S. Ohl, Fair Haven, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application February 21, 1949, Serial No. 77,503

6 Claims. (Cl. 29—25.3)

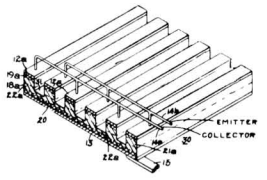
1. An element for use in rectifying devices exhibiting peak-back voltages of the order of 200 volts when employed in combination with a limited area tungsten contact, comprising a tantalum member, a layer of a compound of tantalum and silicon in intimate contact with said tantalum member, and a layer of high purity silicon in intimate contact with and superposed on said layer of tantalum and silicon, said silicon being fused and crystallized in a vacuum from particles having a purity in excess of 99.9 per cent and a brownish sintered appearance.

2,688,110
SEMICONDUCTOR TRANSLATING DEVICE
Joseph V. Domaleski, Summit, Emmet L. Gartland, Berkeley Heights, and Joseph J. Kleimack, Scotch Plains, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 30, 1950, Serial No. 198,294
13 Claims. (Cl. 317—235)



1. A semiconductive translating device comprising a semiconductive body, a first electrode making contact to said body, a second electrode secured to said body, a seamless hollow envelope of insulating material surrounding said body and engaging said electrodes and securing them in their relative positions, said envelope having a cavity which contains at least a portion of said semiconductive body and said first contact, a flexible section in said first electrode within said cavity and intermediate said envelope and said first contact, and a yieldable, nonconducting material surrounding said flexible section and filling said cavity.

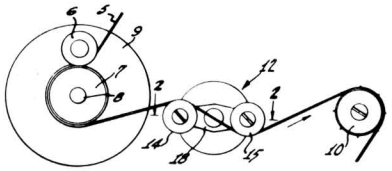
2,689,930
SEMICONDUCTOR CURRENT CONTROL DEVICE
Robert N. Hall, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application December 30, 1952, Serial No. 328,634
15 Claims. (Cl. 317—234)



1. A current control device comprising a semiconductor crystal having a P-type zone and an adjoining N-type zone forming an intermediate P–N junction, said P-type zone having a slightly P-type region bordering said junction and a more strongly P-type surface adjacent region remote from said junction, said N-type zone having a slightly N-type region bordering said junction and a more strongly N-type surface adjacent region remote from said junction, an acceptor activator electrode fused to said P-type surface adjacent region of said crystal, and a donor activator electrode fused to said N-type surface adjacent region of said crystal.

SECTION VI. SOUND AND SOUND-PICTURE RECORDING AND REPRODUCING APPARATUS

2,685,417
INSTANTANEOUS FILM MOTION FILTER
Sten E. Bartelson, Birmingham, Mich., assignor to Radio Corporation of America, a corporation of Delaware
Application July 27, 1951, Serial No. 238,890
7 Claims. (Cl. 242—75)

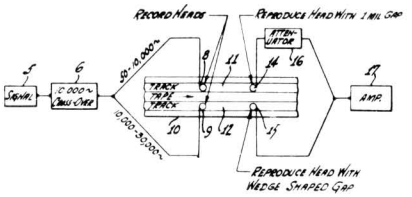


1. A filter unit for obtaining uniform motion of a moving film strip comprising at least one roller adapted to be displayed by changes in film tension, a shaft for said roller, a support for said roller shaft, a shaft for said support adapted to be rotated with displacement of said roller, a resilient element having one end thereof attached to said support shaft for resisting the rotation thereof in one direction, a fixed casing for said resilient element, the other end of said resilient element being attached to said fixed casing, and a damping material within said casing and in contact with the surfaces of said resilient element.

2,685,618
WIDE RANGE MAGNETIC RECORDING SYSTEM AND METHOD
Michael Rettinger, Encino, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application December 29, 1951, Serial No. 264,193
8 Claims. (Cl. 179—100.2)

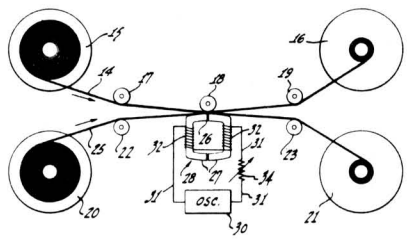
1. A system for recording and reproducing a band of frequencies to and from a moving magnetizable medium which avoids nodal points which would otherwise appear in the reproduced output which comprises separating means for dividing said band of frequencies into upper and lower frequency bands at a frequency in the region of the frequency at which the first of said nodal points normally occurs, a first and a second recording means adjacent to said magnetizable medium, means coupling said first and second recording means to said separating means in such manner that said first recording means receives said lower band of frequencies and said second

recording means receives said upper band of frequencies, a first and a second pickup means adjacent to said magnetizable medium for respectively picking up signals recorded in said



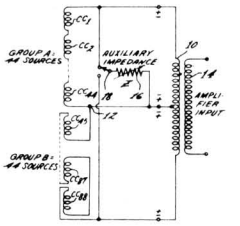
medium by said recording means, said first pickup means having a substantially constant width magnetic gap, said second pickup means having a substantially wedge-shaped magnetic gap, amplitude equalizing means coupled to one of said pickup means, and signal combining means coupled to said equalizing means and to the other of said pickup means whereby the said upper and said lower frequency bands are recombined for reproduction in their original amplitude relationship.

2,686,229
MAGNETIC RECORD COPYING
Dorothy L. Blaney, Los Angeles, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application April 16, 1949, Serial No. 87,923
5 Claims. (Cl. 179—100.2)



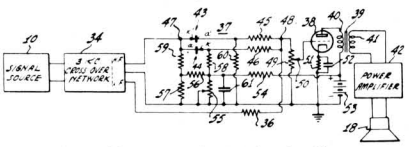
3. A system for producing duplicates of a magnetic sound track, comprising a magnetic sound record medium having a sound track recorded thereon, a magnetizable sound record medium on which said sound record is to be printed, means for advancing said record mediums, means for maintaining contact with said record mediums along a line across said mediums, and means for applying magnetic variations of a frequency above the highest frequency on said track to the magnetic particles in the magnetizable record medium to which said magnetic record is to be printed substantially at said line of contact.

2,686,270
ELECTRICAL INPUT CIRCUIT WITH NOISE REDUCING MEANS
William R. Ayres, Oaklyn, and Daniel W. Martin, Blackwood, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application December 30, 1948, Serial No. 68,274
2 Claims. (Cl. 307—89)



1. In an electrical input circuit having a plurality of electromagnetic pickup coils responsive to stray electromagnetic fields, said coils being series connected in two different groups having an equal number of said coils, said groups having their outputs connected to a common output circuit so that noise voltages induced into said coils by said stray magnetic fields are in phase opposition therein, said stray electromagnetic fields inducing a greater noise voltage into the first said coil group than into the second by virtue of said stray fields being closer to said first coil group, the improvement which comprises connecting an auxiliary impedance in parallel with said first coil group to provide for reduced pickup sensitivity thereof and correspondingly reducing said noise voltage induced therein to the value of the noise voltage induced into said second group of coils and permitting said noise voltages induced into each of said coil groups to cancel in said output circuit.

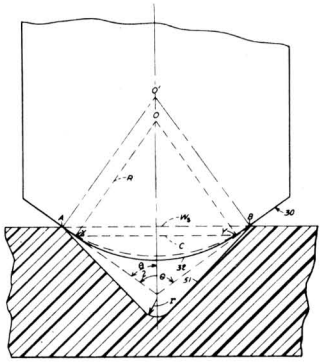
2,686,296
NOISE REDUCTION SYSTEM
Harry F. Olson and Donald F. Pennie, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application July 14, 1949, Serial No. 104,776
2 Claims. (Cl. 333—18)



1. In a signaling system including a circuit providing a source of alternating voltages of variable amplitude, frequency selective means coupled to said circuit to segregate approximately one and one-half octaves of the higher frequency audio signals, an amplitude discriminating circuit comprising a first non-linear unilaterally conducting device consisting of a germanium crystal coupled to said source and having the property of being substantially non-conducting when energized by a voltage of predetermined polarity and relatively small magnitude and being highly conducting when energized by a voltage of opposite polarity, a second non-linear unilaterally conducting device consisting of a germanium crystal coupled to said circuit in shunt with and in opposite polarity to said first mentioned device, means providing for said system a source of unidirectional voltage of relatively large magnitude, and a resistive network for deriving from said unidirectional voltage source and applying to said devices voltages of opposite polarity and relatively small magnitude, said network comprising a relatively high resistance bleeder connected across said unidirectional voltage source, said bleeder including a variable rela-

tively low resistance section, a voltage divider including end terminals and a plurality of serially connected resistors connected therebetween across said low resistance bleeder section, circuit means including two resistors respectively connecting both terminals of said voltage divider to oppositely poled electrodes of said devices, and resistive means connecting the other electrodes of said devices to an intermediate point of said voltage divider, whereby effective low voltage control of said devices with reversed polarity from a single relatively high voltage unidirectional source is attained.

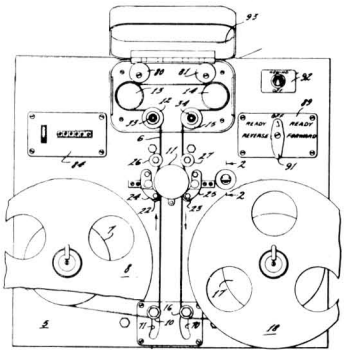
2,686,679
UNIVERSAL SOUND REPRODUCING STYLUS
John Drysdale Reid, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application April 30, 1949, Serial No. 90,716
10 Claims. (Cl. 274—38)



1. A one-piece universal sound-reproducing stylus for use with any of the following types of record discs, having laterally modulated V-shaped grooves terminating in a bottom radius and average dimensions approximately as follows: First, the large-groove type having an 88 degree groove angle, a groove width of 0.006 inch and a bottom radius of 0.0023 inch; second, the fine-groove type having a groove angle of 85 degrees, a groove width of 0.00275 inch and a maximum bottom radius of 0.00025 inch; and third, the fine-groove type having a groove angle of 87 degrees, a groove width of 0.00285 inch and a maximum bottom radius of 0.0002 inch—said stylus comprising: a conical groove-shoulder contacting portion of circular cross section having an included angle greater than the largest included angle of said grooves, and a curved tip portion having a maximum width less than 0.00275 inch.

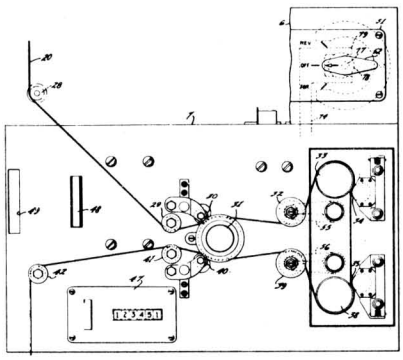
2,687,882
PANEL MAGNETIC SOUND RECORDER AND REPRODUCER
James L. Pettus, Encino, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application December 19, 1950, Serial No. 201,658
8 Claims. (Cl. 271—2.3)

1. A magnetic film drive mechanism comprising a panel on which said mechanism is mounted,



sprocket means for advancing film to form said film into a loop, a pair of drums around which said film loop passes, a shaft for each of said drums, a flywheel on said shaft of each of said drums, a pair of rollers between said sprocket means and said drums, said rollers forming said film into two substantially right-angled loops between said sprocket means and said drums, pivoted arms for said rollers, tensioning means between said arms of said rollers and between said arms and fixed positions on said panel, said tensioning means urging said rollers together with a certain amount of tension, urging one of said rollers toward one of said fixed positions with a different amount of tension, and urging said other roller toward said other fixed position with a third amount of tension, and damping means attached to one of said arms.

2,687,883
FILM DRIVE AND FILTER SYSTEM
James L. Pettus, Encino, and Arthur C. Albee, Hollywood, Calif., assignors to Radio Corporation of America, a corporation of Delaware
Application October 15, 1951, Serial No. 251,384
10 Claims. (Cl. 271—2.3)

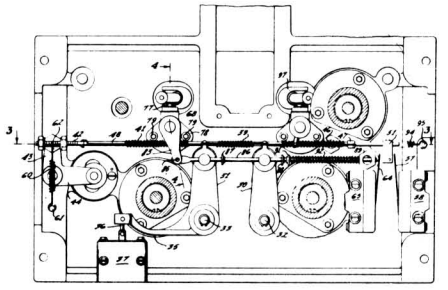


1. A film drive system comprising a drive sprocket, a pair of inertia drums, a pair of film tensioning rollers, the film passing on one side of said sprocket, around one of said tensioned rollers, around one of said drums, around said other drum, around said other roller, and back to another side of said sprocket, a spring for resiliently urging said rollers together to tension said film, a second spring urging said rollers in one direction, a third spring urging said rollers in the opposite direction, and movable means to which one end of each of said second and third springs is attached for reducing the tension in

said second spring and simultaneously increasing the tension in said third spring when said means is moved in one direction and said film is advanced in one direction by said sprocket and for reducing the tension in said third spring and increasing the tension in said second spring when said means is moved in the opposite direction and said film is advanced in the opposite direction.

2,687,884
FILM ADVANCING AND FILTERING MECHANISM
Hugh C. Ward, Los Angeles, and James L. Pettus, Encino, Calif., assignors to Radio Corporation of America, a corporation of Delaware
Application October 18, 1951, Serial No. 251,877
7 Claims. (Cl. 271—2.3)

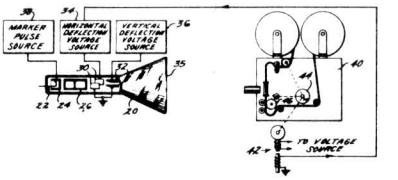
1. A film drive system comprising a pair of film drive sprockets, a film shoe for each of said sprockets, means for maintaining each of said shoes in closed position on its respective sprocket, a pair of inertia drums, a pair of tensioning rollers, the film passing from one sprocket around one tensioning roller, around one drum, and then around the other drum, the other tensioning roller, and over the other sprocket, resilient means for urging said tensioning rollers toward one another, a pair of resilient means for urging said tensioning rollers away from one another, a switch mechanism having a portion movable substantially parallel with the axis of said resilient means for varying the tension of said pair of resilient means with respect to each other depending upon the direction of advancement of the film through said mechanism, spring means



connected to one of said film shoes for urging said shoe toward open position, and means associated with said spring means for holding said tensioning rollers in fixed positions when said shoe is moved to open position by said spring means.

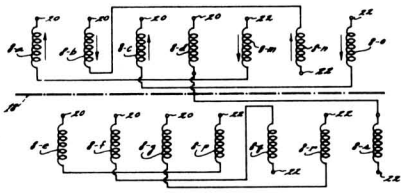
2,688,897
TESTING MOTION-PICTURE CAMERAS
Kenneth E. Palm, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application December 30, 1949, Serial No. 136,115
The terminal 15 years of the term of the patent to be granted has been disclaimed
9 Claims. (Cl. 88—14)

1. A method of making a record of intermittent motion of film through a motion picture camera as an aid in testing the operation of the camera, said method comprising the steps of generating a



spot of light, moving said spot of light repeatedly through a predetermined path, continuously exposing unexposed film in a motion picture camera being tested to said moving light spot as said film is moving intermittently through said camera, and developing said film after exposure thereof to said moving light spot to bring out on said film the image of said moving light spot as a record of the motion of said film through said camera.

2,689,274
RECORDING ON MAGNETIC TAPE
Waldemar Saeger, Gloucester, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 30, 1953, Serial No. 352,081
4 Claims. (Cl. 179—100.2)

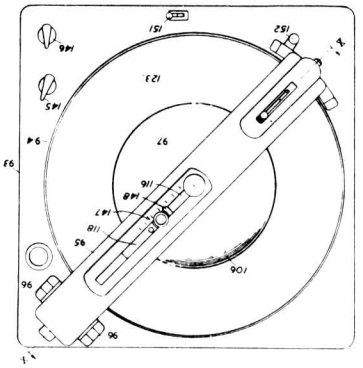


3. In a magnetic recorder, a multi-channel transducer characterized in that said transducer comprises a plurality of head units each having a core and a signal winding cooperatively associated with said core, said head units being arranged in closely spaced, side-by-side relationship, widely separated ones of said head units constituting pairs and having the signal windings thereof connected together serially, each pair of head units constituting a single two-track channel, adjacent ones of said windings which together with their associated cores constitute first units of said pairs being connected to be energized in phase with respect to each other, and adjacent ones of said windings which together with their associated cores constitute second units of said pairs being connected to be energized in phase opposition with respect to each other.

2,690,340
SOUND RECORDING OR REPRODUCING APPARATUS
Henry Milburn Harrison, Hanworth, and John William Driscoll, Heston, England, assignors to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
Application September 20, 1950, Serial No. 185,784
Claims priority, application Great Britain September 24, 1949
9 Claims. (Cl. 274—4)

1. Magnetic sound recording or reproducing apparatus comprising a casing, a turntable for

supporting a magnetic record disc rotatably mounted on said casing, a supporting arm pivoted on said casing for angular displacement in a plane normal to the plane of a turntable, a tracking disc mounted for free rotation on said arm and having a spiral track, a fixed guide railway on said arm, a carriage having rollers on said railway whereby said carriage is mounted on said arm for displacement with respect to said tracking disc, an electro-magnetic transducing head carried by said carriage, and a detent on said carriage normally engaging said track on the tracking member, said arm being mounted



on the casing for pivotation from one position in which said tracking disc is supported by said turntable coaxially therewith and with said head positioned to engage a record disc on said turntable, to another position in which said tracking disc and head are removed from said turntable to permit a record disc to be placed on or removed from said turntable.

2,690,472

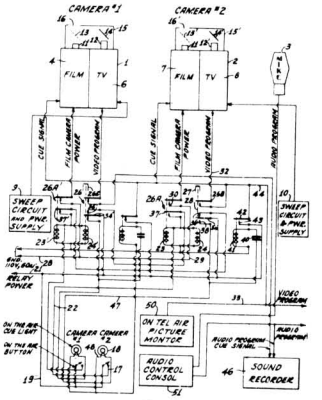
SYSTEM FOR PHOTOGRAPHICALLY RECORDING TELEVISION PROGRAMS

Pierre H. Boucheron, Jr., Roslyn Heights, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

Application December 21, 1950, Serial No. 202,051

The terminal 15 years of the term of the patent to be granted has been disclaimed

6 Claims. (Cl. 178—5.8)



2. Apparatus for making a photographic record of a television program comprising in combination a plurality of studio cameras, each of said studio cameras comprising a photographic camera and a television pick-up tube, automatic switching apparatus for selectively rendering one said photographic camera and its associated television pick-up tube operative at successive intervals of time so that the photographic camera is up to normal speed when the video signals from said pick-up tube are applied to a common video output bus.

SECTION VII. MEASURING AND TESTING APPARATUS

2,683,187

METHOD OF AND MEANS FOR TESTING COLOR TELEVISION APPARATUS

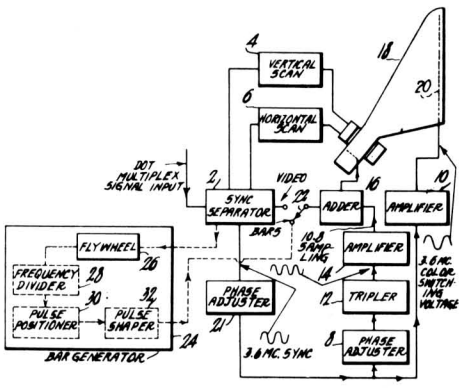
Nathan Rynn and Paul K. Weimer, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application February 28, 1951, Serial No. 213,212

The terminal fifteen years of the term of the patent to be granted has been disclaimed

5 Claims. (Cl. 178—5.4)

3. Apparatus for testing color television equipment in a system of the type employing color detection means and wherein there is employed a scanning cathode ray beam image reproducing device having color control means, a scanning cathode ray beam control electrode and wherein said image reproducing device employs a scanning sequence involving a normally active scanning beam time occupied by a scanning line and a normally inactive scanning beam flyback time, means for inactivating said scanning beam during said normally active scanning beam time occupied by a scanning line and activating said



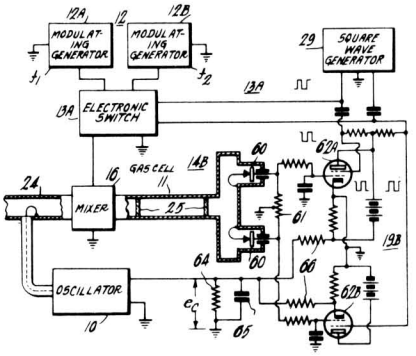
scanning beam only during the time interval occupied by alternate flyback line positions, a bar pattern generator having a signal output circuit and means connecting said bar pattern generator signal output circuit to said scanning cathode ray beam control electrode.

2,683,217
FREQUENCY CONTROL OF PULSED AND CONTINUOUS-WAVE OSCILLATORS

Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application November 7, 1950, Serial No. 194,442
11 Claims. (Cl. 250—36)

1. A system for determining the sense of deviation of oscillations from a desired carrier frequency comprising means for modulating said oscillations alternately by two different modulating frequencies repeatedly successively to produce discrete closely adjacent sideband frequencies, a circuit element upon which said discrete sideband frequencies are impressed and which is sharply resonant at a fixed frequency between

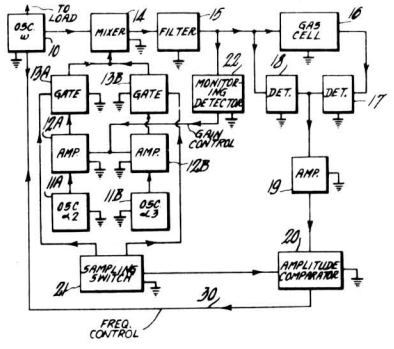


the discrete sideband frequencies for null deviation of the carrier frequency, and non-linear resistance means for demodulating the sideband energies transmitted by said circuit element to produce outputs normally of different amplitude and the sign of whose differential amplitude reverses with reversal of the deviation of the carrier frequency.

2,683,218
GAS-LINE STABILIZED OSCILLATOR

Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 29, 1951, Serial No. 228,921
15 Claims. (Cl. 250—36)



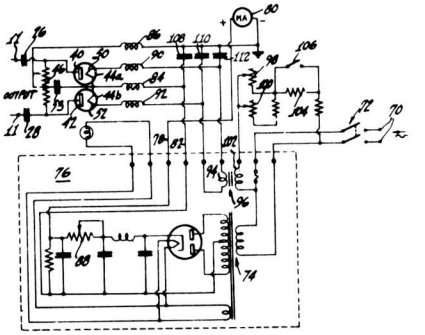
1. A method of determining the sense of deviation of oscillations from a correct carrier-frequency which comprises modulating said oscillations alternately at two modulating frequencies repeatedly to produce two sidebands having closely adjacent frequencies, continuously monitoring and maintaining equality of the amplitude levels of the sidebands, impressing both the sidebands of equalized amplitude levels upon a single frequency standard sharply resonant at a frequency midway of the sideband frequencies for null deviation of the carrier-frequency, and demodulating the sideband energies passed by the frequency standard to produce pairs of output signals, the sense of whose relative amplitude reverses with reversal of the sense of deviation of the carrier-frequency.

2,685,031
NOISE VOLTAGE GENERATOR

Harwick Johnson, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application December 24, 1949, Serial No. 135,007
5 Claims. (Cl. 250—36)

1. In a noise voltage generator for supplying noise voltages to an apparatus having a balanced input circuit to determine the noise factor of said apparatus, in combination, a pair of output terminals adapted to be connected to said balanced input circuit, a center tapped resistor connected between said terminals and having a resistance equal to the resistance of a signal



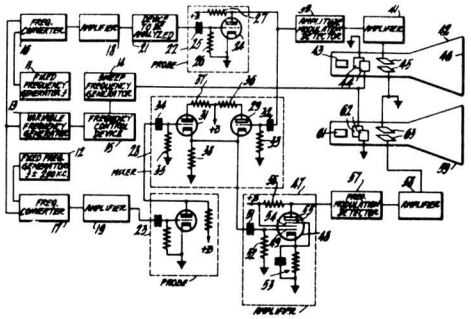
source with which said apparatus is designed to operate, a pair of thermionic diode tubes each having an anode and a cathode, said tubes being serially connected in opposite polarity between said terminals, and means connected to said center tap and to said cathodes for generating temperature-limited space current flow in said diodes.

2,685,062
SIGNAL TRANSMISSION ANALYZING SYSTEM

Alfred C. Schroeder, Feasterville, Pa., and Karl R. Wendt, Eggertsville, N. Y., assignors to Radio Corporation of America, a corporation of Delaware

Application July 18, 1950, Serial No. 174,494
12 Claims. (Cl. 324—57)

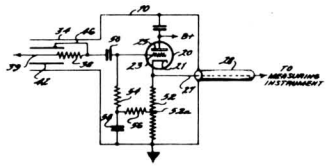
4. Apparatus for analyzing and indicating the transmission characteristics of a signal transfer device in a predetermined frequency range, said apparatus comprising, means for producing a plurality of test signals, each continuously varying periodically through a range of frequencies corresponding substantially to said predeter-



mined frequency range, said individual test signals differing from one another at all points in their respective ranges by a given frequency, means coupled to said test signal producing means to mix said test signals in a manner to produce a composite signal having a frequency substantially equal to said given test signal frequency difference, means coupled to said test signal-producing means to impress one of said test signals upon said signal transfer device, means including an amplitude modulation detector coupled to said signal transfer device to indicate the amplitude characteristic of said device, and means including a frequency modulation detector coupled to receive the output of said signal transfer device and of said test signal frequency mixing means to indicate the phase characteristic of said device.

2,685,673
HIGH FREQUENCY TEST PROBE
Jack Avins, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application July 28, 1949, Serial No. 107,326
4 Claims. (Cl. 324—72.5)

1. An electrical test-probe for picking up high frequency alternating voltage from selected points in an electrical device to be tested without interfering appreciably with the operation of said device, said test-probe comprising a first conductive member having a free end adapted to be placed in contact with said selected points, a completely shielded conductor adapted to be connected to a remote testing point, a resistor, a circuit including said resistor connecting said first conductive member to said shielded conductor, a second conductive member insulated from and partially surrounding said first conductive member and connected to a point in said circuit between said resistor and said shielded conductor thereby to form in shunt with said

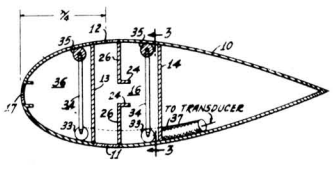


resistor a capacitor having plates comprising said first and said second conductive members, a conductive cylindrical housing insulated from and completely surrounding said second conductive member and said circuit, said shielded conductor comprising a metallic shield insulated from said conductor, and means to electrically connect said shield and said housing to each other and to ground.

SECTION VIII. ANTENNAS

2,685,029
COMPACT WIDE BAND ANTENNA SYSTEM
Nils E. Lindenblad, Rocky Point, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application May 20, 1950, Serial No. 163,179
7 Claims. (Cl. 250—33)

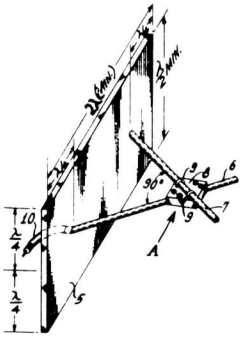
1. An antenna system including a first cavity resonator structure having a slot radiator element therein, a second cavity resonator structure having two slot radiator elements therein,



each of the slot radiator elements of said second structure being arranged at equal space path distances from the slot radiator element of said first structure, and means to induce wave energy into each of said structures, said means comprising coaxial transmission lines having center and sheath conductors, said sheath conductors being connected to given walls of said structures and said center conductors extending substantially entirely across the interiors of said structure to the opposing walls thereby to energize opposing edges of the slot radiator elements in phase opposition to produce inphase addition of the components obtained from all of said slot radiator elements at the slot radiator element of said first structure to provide increased directivity of said antenna system in the direction of radiation of said first structure.

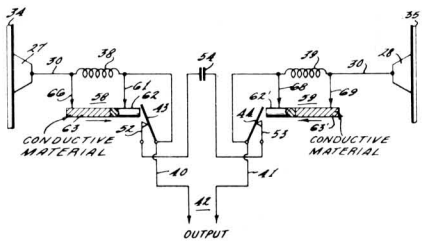
2,685,030
BEAM ANTENNA
Woodrow Darling, Merchantville, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application November 30, 1951, Serial No. 259,157
2 Claims. (Cl. 250—33.65)



1. In an antenna system, the combination of a reflecting screen and a pair of radiators, said radiators projecting obliquely from said reflector so that the said radiators cross substantially at right angles at a predetermined distance from said reflector, a coaxial line having an inner conductor and an outer conductor passing through the first of said radiators and having its outer conductor electrically connected thereto at the point where the said radiators cross, the inner conductor of the said coaxial line protruding from the said first radiator and electrically affixed to the second of the said radiators at said cross-over point, and means insulating said radiators from each other at the said cross-over point.

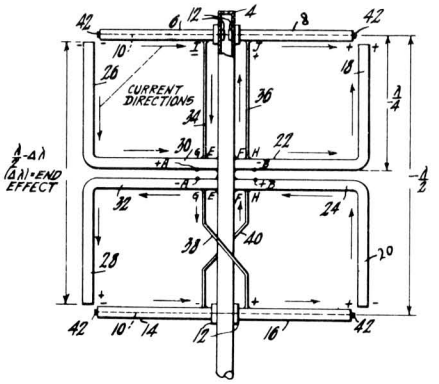
2,686,873
BUILT-IN CABINET ANTENNA FOR TELEVISION RECEIVERS
Benjamin S. Vilkomerson, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 1, 1952, Serial No. 279,747
6 Claims. (Cl. 250—33)



1. A high frequency multi-band dipole antenna adapted to be mounted within a signal receiver cabinet comprising a pair of dipole antenna elements, inductive loading means comprising a pair of inductors individually coupled to the adjacent ends of each of said elements, a tuning core for each of said inductors, a drive means connected with each of said cores for moving each of said cores with respect to said inductors, and means including said cores for effectively short-circuiting said loading means in response to a predetermined movement of said core, whereby said antenna is fixed tuned for operation in one high frequency band and variably tunable over a relatively lower high frequency band.

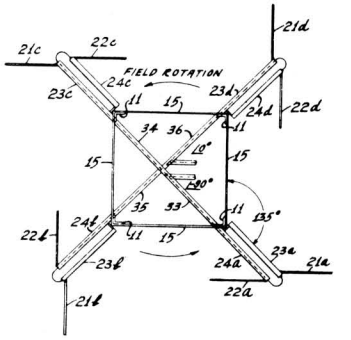
2,688,081
ANTENNA SYSTEM
Edmund A. Laport, Glen Ridge, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 26, 1951, Serial No. 258,249
9 Claims. (Cl. 250—33.53)

1. An antenna system comprising a plurality of horizontal turnstile arrays mounted at their centers on a supporting mast, arrays of center-fed vertical dipoles supported at their centers on said mast, said dipoles having their ends arranged adjacent to but spaced from the ends of said turnstile arrays, feed lines interconnecting selected elements of said horizontal and vertical arrays,



and means for supplying balanced two phased excitation currents to said feed lines.

2,688,082
ANTENNA SYSTEM
Woodrow Darling, Merchantville, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 8, 1953, Serial No. 360,254
5 Claims. (Cl. 250—33.53)

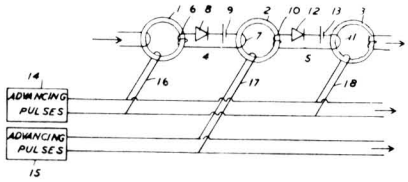


1. An antenna system including a supporting tower structure, conductive surface elements having a width of substantially a half wavelength at the desired operating frequency, said conductive surface elements being mounted about said tower structure and forming a square at any transverse cross-section, a dipole element supported out from a corner of said square at a distance lying between 0.2 and 0.3λ at the operating frequency, said dipole element having its arms parallel to the plane of one of said conductive surface elements, and means to couple a radio frequency transmission line to said dipole element.

SECTON IX. COMPUTERS AND COUNTERS

2,683,819
REGISTERS SUCH AS ARE EMPLOYED IN DIGITAL COMPUTING APPARATUS
Thomas Julius Rey, Hayes, England, assignor to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
Application May 28, 1952, Serial No. 290,520
Claims priority, application Great Britain June 5, 1951
4 Claims. (Cl. 307—88)

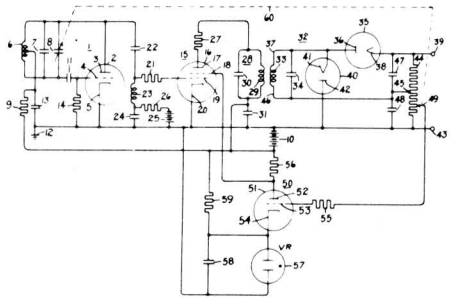
1. A register for digital computing apparatus comprising a series of more than two magnetizable cores, means for inducing magnetization changes in the individual cores, electrical conductive links coupling said cores in cascade with each link coupling one core to a succeeding core for propagating magnetization changes from one core to another, a polarized device connected in series in each link for rendering the link sensitive to magnetization changes of only a single polarity, the threshold in each polarized device being predetermined in relation to the ratio of the turns of the respective



link round the first of two coupled cores to the turns of the link round the second of two coupled cores to confine the propagation of magnetization changes to a single direction.

SECTION X. MISCELLANEOUS APPARATUS

2,683,852
REGULATED POWER SUPPLY
Ernest S. Sampson, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application December 30, 1949, Serial No. 135,990
7 Claims. (Cl. 321—18)

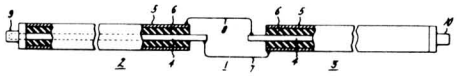


1. In a regulated power supply of the type having a parallel resonant circuit, means for providing alternating current through said resonant circuit, means coupled to said resonant circuit for providing an electrical output, adjustable means to derive a control voltage proportional to an adjustable fraction β of such electrical output, and control means responsive to variations in the value of such control voltage for automatically controlling such alternating current to maintain such electrical output at a predetermined value, the improvement which comprises means operatively coupled to said adjustable control voltage deriving means for automatically changing the effective impedance of said resonant circuit inversely in proportion to changes in the value of the fraction β.

2,684,892
FERRIC CHLORIDE ETCHING SOLUTIONS
Theodore A. Saulnier, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
No Drawing. Application January 14, 1953, Serial No. 331,315
8 Claims. (Cl. 41—42)

1. An etching composition comprising a water solution of ferric chloride having a specific gravity of 35° to 48° Baumé, 20 to 50 grams per liter of a substance selected from the group consisting of ammonium persulfate, alkali metal persulfates, and a mixture of ammonium and alkali metal persulfates, and 2% to 10% by volume of a substance selected from the group consisting of concentrated hydrochloric acid, concentrated nitric acid, and a mixture of hydrochloric and nitric acids.

2,684,993
PARALLEL CONNECTED CONCENTRIC CONDUCTOR
Benjamin N. Bowers, Pittsfield, Mass., assignor to General Electric Company, a corporation of New York
Application July 19, 1949, Serial No. 105,546
8 Claims. (Cl. 174—17)



3. An electrical current conductive apparatus including two pairs of concentric electrical conductor elements, each pair comprising an inner conductor element and a hollow outer conductor element, said inner conductor element and said outer conductor element in each pair being insulated from each other over substantially all of the respective lengths of said elements, the two ele-

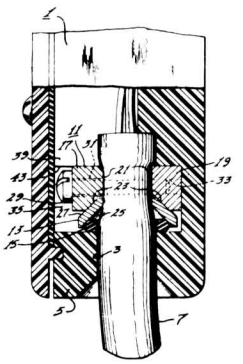
ments in each pair being directly connected together at one end and the other end of the inner element of each pair being connected respectively to the other end of the outer element of the other pair.

2,685,568
SOFT FERROMAGNETIC MIXED FERRITE MATERIAL
Volney C. Wilson, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application May 10, 1950, Serial No. 161,188
4 Claims. (Cl. 252—62.5)

1. A soft magnetic mixed crystal ferrite material consisting essentially of nickel ferrite, zinc ferrite and copper ferrite and having a metal oxide content of 47 to 49 mol per cent iron oxide, 1 to 8 mol per cent copper oxide, 28 to 38 mol per cent zinc oxide, balance nickel oxide, said mixed ferrite having a D. C. resistivity greater than 10^7 ohm-cm, and a magnetic induction greater than 400 gauss at a field strength of 1 oersted.

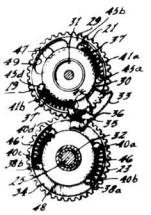
2,686,828
CABLE CLAMP AND SEAL
Albert C. Guy, Hartford, and Robert E. Ulrich, Riverton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application August 31, 1950, Serial No. 182,478
The terminal 15 years of the term of the patent to be granted has been disclaimed
9 Claims. (Cl. 174—65)

1. A cable clamp and seal for a cable adapted to pass through an opening in a wall of a casing, said clamp and seal comprising in combination a plurality of spaced apart members adapted to engage the outer surface of said cable, sealing means comprising a gland member and a compressible ring disposed between said spaced apart members and said casing for effecting a fluid tight seal between said cable and said casing wall, adjustable means urging said spaced apart members towards each other to exert pressure through said spaced apart members on said cable, and means including said spaced apart members for urging said gland member away from said



spaced apart members and toward said casing wall upon movement of said spaced apart members towards each other, thereby to press said compressible ring against said casing wall.

2,688,882
LOW TORQUE, ENERGY ABSORBING, STOPPING DEVICE
Matthew R. Alexy, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application July 24, 1951, Serial No. 238,268
4 Claims. (Cl. 74—414)



1. An energy absorbing stop for arresting motion of a pair of engaging toothed gears without shock when predetermined points on the circumference of each of said gears move into a predetermined corresponding relationship comprising complementary extensions, and resilient couplings connecting said complementary extensions to each of said gears, said extensions being disposed on said gears to initially contact one another when said predetermined points move into said predetermined corresponding relationship with one another, said resilient couplings allowing energy absorbing relative movement between each extension and its associated gear, the extent of said movement being sufficient to allow further engagement of the teeth of said gears before engaging motion of said gears is completely arrested.

2,689,187
METHOD AND COMPOSITIONS FOR FORMING NITROCELLULOSE FILMS
Soren M. Thomsen, Pennington, N. J., assignor to Radio Corporation of America, a corporation of Delaware
No Drawing. Application September 29, 1951, Serial No. 249,011
11 Claims. (Cl. 106—184)

1. A film-spreading composition consisting essentially of nitrocellulose and liquid in which said nitrocellulose constitutes not more than about 20% by weight and said liquid constitutes the remainder and in which the liquid consists essentially of (1) a substantially non-volatile, water-insoluble plasticizer for said nitrocellulose, present in an amount of about $\frac{1}{10}$ to ½ the weight of said nitrocellulose, (2) of substantially water-insoluble solvent selected from the class consisting of octyl acetate, ethyl butyl acetate and ethyl amyl acetate in an amount equal to about 2 to 4 times the weight of the nitrocellulose, and (3) a solvent selected from the class consisting of ethyl acetate, cyclohexanone and methyl isobutyl ketone constituting the remainder.

8. A film-spreading composition consisting essentially in per cent by weight of nitrocellulose 10%, dioctyl phthalate 2.5%, octyl acetate 27.5%, and mesityl oxide 60%.

2,690,407

METHOD OF PREVENTING ACCUMULATION OF STATIC CHARGES

Leopold Pessel, Whitemarsh, Pa., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Application May 25, 1951, Serial No. 228,373

11 Claims. (Cl. 117—138.8)

5. A method of giving a surface of a body made of synthetic resinous material anti-static properties, said method comprising providing said surface with a film composed of a water-insoluble, partially hydrolyzed polyvinyl alcohol, and an acetate of a long chain amine of which the carbon chain contains 6–18 carbon atoms, said alcohol and said acetate being present within the range of ratios of 50 to 1 and 1 to 200.

2,690,408

SOLDER FLUX COMPOSITIONS CONTAINING AN ARYL BIGUANIDE HYDROCHLORIDE

Leopold Pessel, Springfield Township, Montgomery County, Pa., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Application January 18, 1951, Serial No. 206,729

8 Claims. (Cl. 148—23)

1. A soldering flux composition comprising about 5% to about 99% by weight of an aryl biguanide hydrochloride and the remainder consisting essentially of a spreading agent selected from the class consisting of solid natural resins, waxes, and relatively inert, high boiling organic liquids, selected from the group consisting of heptadecanol, di-tertiary amyl phenoxy ethanol, amyl naphthalene, dodecyl toluene, fluid silicones and polybutene.

Chester W. Säll

Chester W. Säll