LB-912

Licensee Patent Bulletin

Series 53-1

RADIO CORPORATION OF AMERICA

RCA LABORATORIES DIVISION

INDUSTRY SERVICE LABORATORY

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Licensee Patent Bulletin

Series 53-1

January 1, 1953 to March 31, 1953

Approved

Stuart W. Seeley

Index

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. 2,036,182 have expired on or before March 31, 1953.

DISCLAIMERS FILED IN THE UNITED STATES PATENT OFFICE

2,568,918.—***Igor E. Grosdoff***, **Princeton, N. J. RESET CIRCUIT FOR ELECTRONIC COUNTERS. Patent dated Sept. 25, 1951. Disclaimer filed Feb. 9, 1953, by the assignee, *Radio Corporation of America.***

Hereby enters this disclaimer to claims 1, 2, 3, and 4 of said patent.

Notice

With respect to the listed patent of Pye, Ltd. and any other patents of Pye, Ltd. under which Radio Corporation of America grants licenses, RCA's rights to grant licenses and any licenses extended by RCA to its licensees under such patents will expire on December 31, 1953.

Patent	Assignee Company	Section
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2,624,797	Pye	II-B
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2,627,416	RCA	V
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2,629,026	RCA	III-A
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2,629,065	WEC	IV-B
2,629,093	WEC	IV-B
2,629,603	RCA	I-A
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2,629,767	RCA	VIII
2,629,775	RCA	II-D
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2,629,858	RCA	II-E
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2,631,077	AVCO	I-A
2,631,193	RCA	III-C
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2,631,201	RCA	III-A
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2,631,240	GE	III-B
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2,632,062	Bell	I-D
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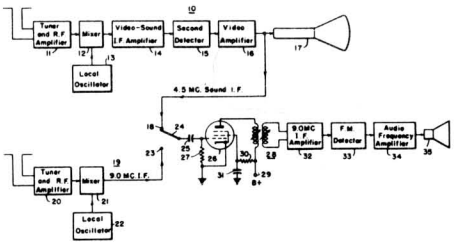
2,632,108	RCA	II-E
2,632,129	WEC	IV-B
2,632,157	RCA	II-C
2,632,162	RCA	II-A
2,632,370	RCA	II-B
2,632,802	RCA	I-B
2,632,805	WEC	II-E
2,632,845	RCA	III-C
2,632,854	WEC	II-E
2,632,864	RCA	II-B
2,632,866	GE	IV-D
2,633,427	RCA	V
2,633,489	GE	VIII
2,633,538	RCA	I-B
2,633,542	RCA	VIII
2,633,547	RCA	IV-C
2,633,554	RCA	I-B
2,633,555	RCA	I-B

SECTION I. RADIO BROADCAST RECEIVERS

I-A. Sound Receivers (includes Phonographs)

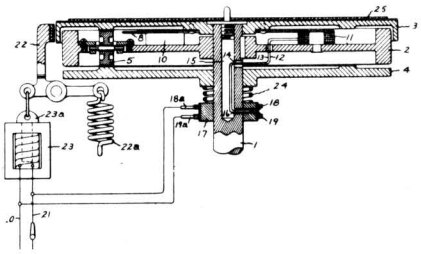
2,626,315
COMBINATION RADIO AND TELEVISION RECEIVER
Kenneth E. Farr, Paxinos, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application September 8, 1950, Serial No. 183,727
6 Claims. (Cl. 178—5.8)



6. A television and frequency modulation broadcast receiving system comprising a super-heterodyne, television receiver having an inter-carrier, frequency modulated, sound intermediate frequency, a super-heterodyne, frequency modulation broadcast receiver having an intermediate frequency which is a multiple of said inter-carrier, intermediate frequency, an intermediate frequency amplifier tube having an output circuit tuned to said intermediate frequency of said broadcast receiver, and having an input circuit, means for biasing said tube to operate on a non-linear portion of its characteristic curve so as to generate harmonics of signals applied to said input circuit, a frequency modulation detector connected to said output circuit, an audio-frequency amplifier connected to said detector, a sound reproducer connected to said audio-frequency amplifier, and switching means for connecting said input circuit to said television receiver or alternatively to said broadcast receiver.

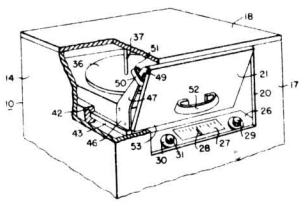
2,627,414
PHONOGRAPH TURNTABLE MECHANISM
Arthur W. Sear, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application August 9, 1950, Serial No. 178,527
5 Claims. (Cl. 274—9)

1. In a phonograph turntable mechanism having a vertical drive shaft, a phonograph turntable arranged to carry a record member rotatably mounted on the upper end of said vertical drive shaft, a main flywheel secured to said drive shaft below said turntable and arranged for rotation at a substantially constant speed, a clutch mechanism secured to said turntable and said main flywheel for rotating said turntable in response to engagement of said clutch mechanism, an auxiliary flywheel having a moment of inertia with respect to said shaft substantially equal to the total moment of inertia with respect to said shaft of said turntable and said record member rotatably mounted on said drive shaft below said main flywheel, a plurality of rollers rotatably mounted in the face of said main flywheel having their axes of rotation in



radii of said main flywheel and each having its periphery in contact with said turntable and with said auxiliary flywheel for driving said auxiliary flywheel concurrently with said main flywheel while said turntable is rotating and for driving said auxiliary flywheel at twice the speed of said main flywheel while said turntable is stopped, spring means acting longitudinally with respect to said shaft for holding said auxiliary flywheel in contact with said rollers, and a brake device for stopping said turntable when said clutch mechanism is disengaged.

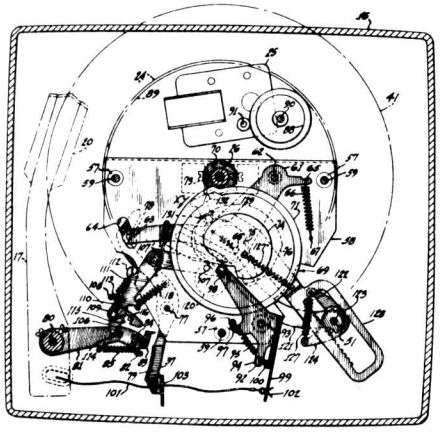
2,627,556
RADIO PHONOGRAPH CABINET
Clyde A. Peterson, Dewart, and Harold W. Schaefer, Sunbury, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 7, 1949, Serial No. 103,384
7 Claims. (Cl. 179—100.12)



1. In a cabinet for radio receiving and record playing apparatus, a wall having an opening therein, a radio receiving set having adjustable controls mounted inside said cabinet with said controls adjacent said opening, record playing apparatus located in said cabinet above said radio receiving apparatus, a closure for said opening attached to said record playing apparatus, means including said closure for moving said record playing apparatus into and out of said cabinet through the opening in said wall, said closure being substantially flush with said front wall

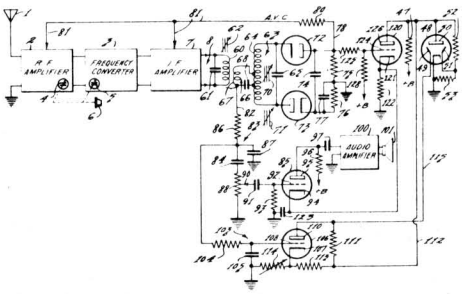
when said record playing apparatus is in normal position in said cabinet, said closure being adapted to be further moved into said cabinet from a position substantially flush with said wall of said cabinet to permit access through said opening to said controls for said radio receiving set.

2,629,603
AUTOMATIC RECORD CHANGER
Benjamin R. Carson, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 11, 1948, Serial No. 7,610
3 Claims. (Cl. 274—10)



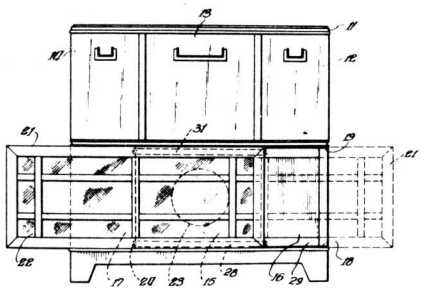
1. In a phonograph of the class described having a motor driven turntable, a tone arm having a sound reproducing instrumentality, and a record support magazine for holding the records prior to their individual positioning on the turntable; a record changing mechanism comprising, a frame for supporting said mechanism, a master cam plate pivotally mounted on said frame, a master cam disc rotatably mounted on said cam plate, a drive wheel secured to said turntable for engagement with the outer peripheral edge of said master cam disc, a ratchet lever having a notch therein adjacent one end and a toothed latch plate adjacent the other end thereof pivotally mounted on said frame, a cam plate pin secured to said cam plate for engagement with said ratchet lever notch to latch and hold said master cam disc from engagement with said drive wheel thereby immobilizing said record changing mechanism, spring means for urging said rotatable master cam disc into engagement with said drive wheel when said ratchet lever notch is out of engagement with said cam plate pin, and means responsive to the termination of a recording for disengaging said cam plate pin from said ratchet lever notch to initiate operation of said record changing mechanism.

2,630,527
INTERCHANNEL NOISE SUPPRESSOR CIRCUITS
Benjamin S. Vilkomerson, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 24, 1948, Serial No. 61,864
3 Claims. (Cl. 250—20)



1. An angle-modulated carrier wave receiver comprising a carrier wave transmission channel, a frequency discriminator coupled to said channel and having an output circuit for developing the modulation signal including a component representative of the sense and amount of frequency departure of the center frequency of said wave from a predetermined frequency, means for separating said component from said signal, circuit means coupled to said discriminator for deriving a control voltage representative of the presence or absence of a carrier wave received by said receiver, a modulation signal amplifier coupled to said output circuit for amplifying said modulation signal, a first control amplifier responsive to said component, a second control amplifier responsive to said control voltage and arranged to be conducting in the absence of a carrier wave, said modulation signal amplifier having a higher amplification factor than said second control amplifier, said signal amplifier and said second control amplifier having each a cathode, said cathodes being connected together, an impedance element in the common cathode circuit of said signal amplifier and said second control amplifier, said signal amplifier being arranged to be non-conducting in the absence of a carrier wave, whereby the presence of a carrier wave will cause said second control amplifier to be cut off and will render said signal amplifier conducting, an electronic indicator device arranged to be inoperative in the absence of a carrier wave and coupled to said first control amplifier, and a circuit connection between said second control amplifier and said device to render said device operative when said second control amplifier is cut off.

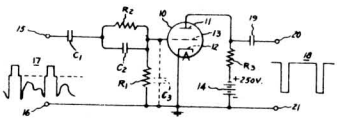
2,631,077
RADIO-PHONOGRAPH COMBINATION RECEIVER CABINET CONSTRUCTION
William H. Clingman, Grand Rapids, Mich., assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application September 13, 1949, Serial No. 115,372
4 Claims. (Cl. 312—8)



1. A cabinet for a phonograph receiver combination having a loud speaker compartment adjacent the bottom thereof, a record storage compartment located adjacent the side thereof, a set of tracks extending across the front of said compartments, a single quadrangular frame normally extending completely across both of said compartments and mounted for lateral movement on said tracks, means comprising at least one stop member mounted centrally on the frame and terminal abutments on the cabinet for limiting the movement of said frame to expose for access said record storage compartment, and a cover for said frame on the side normally adjacent both of said compartments to permit sound to emanate from the loud speaker compartment without substantial change in the mechanical impedance presented to the loud speaker irrespective of the position of said frame, the length of the cover and frame being such that the cover is in front of the speaker compartment at all times.

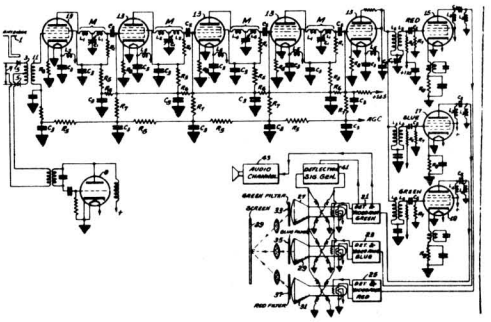
I-B. Television Receivers (includes facsimile)

2,625,603
TELEVISION PULSE SEPARATION CIRCUIT
Wolf J. Gruen, Syracuse, and Theodore V. Zaloudek, Liverpool, N. Y., assignors to General Electric Company, a corporation of New York
Application August 11, 1950, Serial No. 178,848
10 Claims. (Cl. 178—7.3)



10. A television synchronizing pulse separation circuit for separating the unidirectional horizontal and vertical synchronizing pulses from a composite television signal in which all said pulses are of substantially different time durations and of equal amplitudes exceeding the peak amplitudes of interspersed picture signal components, said horizontal pulses recurring at the line scanning frequency or a multiple thereof and said vertical pulses recurring at the field scanning frequency, comprising, in combination, an electron discharge amplifier including an anode, a cathode and a control grid, a grid coupling network having first and second input terminals, means for supplying said composite signal to said terminals with said pulses positive at said second terminal, said first terminal being conductively connected to said cathode, a shunt resistor R_1 connected between said grid and said first terminal, a first coupling capacitor C_1 in series with a discharge resistor R_2 connected between said second terminal and said grid, a second coupling capacitor C_2 connected in shunt with the series connection of C_1 and R_2, and a grid coupling resistor R_1 connected in circuit between said grid and cathode, the circuit constants of said network being so selected that the capacity of C_1 is much larger than that of C_2, that the time constant R_1C_1 is substantially longer than the time period between consecutive vertical pulses that the time constant R_2C_2 is short enough for C_2 to be discharged to a substantial extent during the time period of a few consecutive horizontal pulses, and that the ratio of R_1 to R_2 is approximately equal to the ratio of the reactance of C_2 to the dynamic input impedance of said amplifier, and a pulse output circuit connected between said anode and cathode.

2,626,323
AMPLIFIER CIRCUIT FOR COLOR TELEVISION
George C. Sziklai, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 11, 1947, Serial No. 760,400
5 Claims. (Cl. 179—171)



2. An intermediate frequency amplifier for a color television receiving system of the type employing a composite signal train having a plurality of designated adjacent frequency bands and wherein each of the designated adjacent frequency bands include signals representative of one different selected component color image, said intermediate frequency amplifier comprising in combination a signal amplifier for said composite signal train said amplifier having greater signal gain in the frequency spectrum adjacent the extremities of said designated adjacent frequency bands than the signal gain in the middle of each of said designated adjacent frequency bands, an output circuit for said amplifier and a plurality of additional signal amplifiers each having an input circuit connected to said output circuit and each of said additional amplifiers responsive only to one different of said frequency bands, and wherein each of said additional signal amplifiers has a greater signal gain

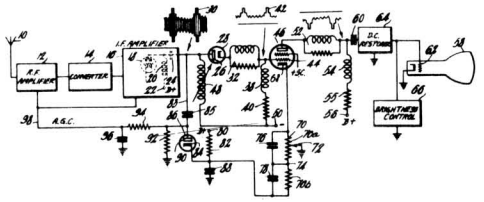
over the frequency spectrum intermediate the extremities of said designated adjacent frequency bands than the signal gain near the extremities of each of said designated adjacent frequency bands.

2,627,022

COMBINED VIDEO GAIN AND FREQUENCY RESPONSE CONTROL

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

Application June 22, 1948, Serial No. 34,373
6 Claims. (Cl. 250—20)



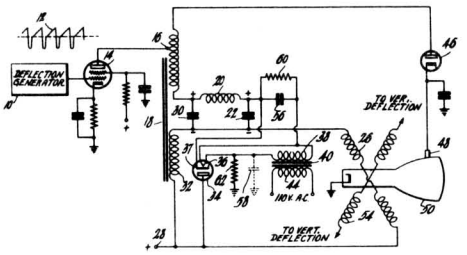
1. An electrical circuit for application in superheterodyne television receivers, said circuit comprising a first diode connected for second detector operation, a second diode connected to said detector for variable threshold automatic gain control voltage rectification, a tube having a control grid and a cathode connected for operation as a first video amplifier stage, a direct current circuit path from said first diode to said control grid, a potentiometer, a load circuit for said second diode connected for developing a variable A. G. C. voltage including a section of said potentiometer connected between said tube cathode and said second diode, and an electrical connection connecting the adjustable tap of said potentiometer with ground potential to define said section.

2,627,051

ELECTRON TUBE VOLTAGE PROTECTION CIRCUIT

Allen A. Barco, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application August 29, 1950, Serial No. 181,971
6 Claims. (Cl. 315—27)



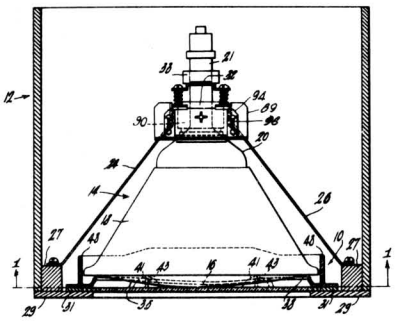
1. In an electrical circuit, the combination of, a reference potential datum, a discharge tube having at least an anode, cathode and heater electrode, said tube having a predetermined maximum heater-cathode voltage rating, an output terminal at which appears a signal waveform relative to said datum having a peak voltage in excess of said heater-cathode voltage rating, a set of heater power supply terminals coupled with said heater for excitation thereof, said terminals having a predetermined circuit capacity relative to said datum whereby said heaters are given a like circuit capacity relative to said datum, a connection from said discharge tube cathode to said output terminal, and a capacitor connected from said cathode to said heater.

2,627,066

POSITIONING STRUCTURE FOR CATHODE-RAY TUBES

George H. Blaker, Moorestown, and Elmer B. Cain, Collingswood, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application May 20, 1950, Serial No. 163,300
5 Claims. (Cl. 340—367)



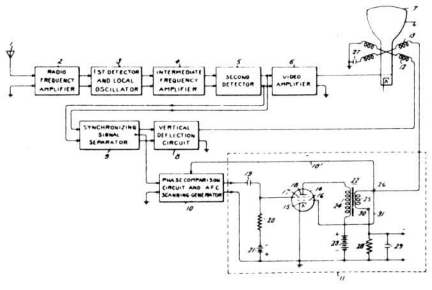
1. A cathode ray tube appliance comprising a cabinet for housing a cathode ray tube of the type having a flaring conductive conical part with a conductive rim and a neck, said cabinet having a front wall and a top, a bracket having means to support the neck of a cathode ray tube positioned in said cabinet, an insulating mask having a cylindrical collar for supporting the rim of the tube, and grooves in said cylindrical collar to receive conductive spacing springs, each spacing spring comprising an enlarged portion to be slidably engaged in one of said grooves, a bowed portion to resiliently press against the rim and an end portion to lie against said cylindrical support.

2,627,588

ELECTROMAGNETIC SCANNING AMPLIFIER CIRCUIT

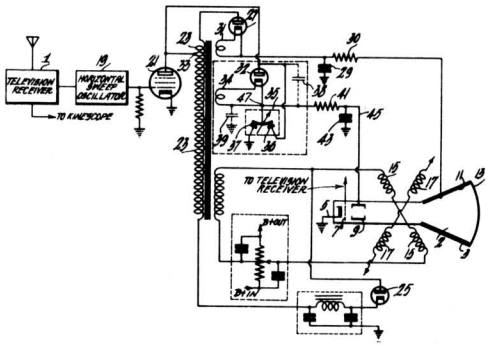
Chester R. Knight, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application June 21, 1951, Serial No. 232,714
6 Claims. (Cl. 315—27)



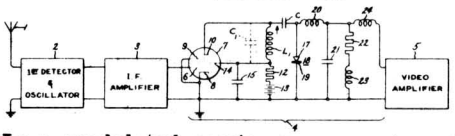
1. A scanning generator output amplifier circuit comprising an electric discharge device having a cathode and a first grid, a second grid, and an anode spaced in the order named from said cathode; an input circuit including said second grid for connection to a scanning wave generator; an output circuit for effectively connecting said cathode and said anode in series with an inductive load; means for biasing said first grid normally positive with respect to said cathode; and means for feeding back voltages from said load and impressing them between said first grid and said cathode in a polarity to drive said first grid negative with respect to said cathode over at least a portion of an applied scanning wave.

2,628,327
HIGH-VOLTAGE SUPPLY FOR CATHODE-RAY TUBES
Benjamin S. Vilkomerson, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 10, 1951, Serial No. 241,321
4 Claims. (Cl. 315—31)



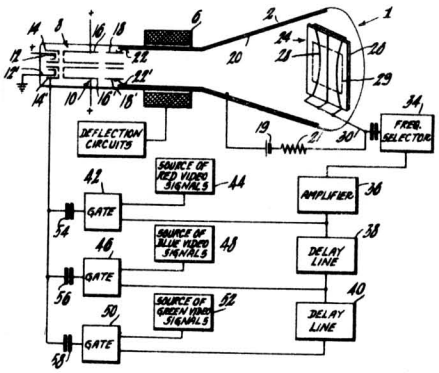
1. A high voltage power supply for an electrostatically focused cathode ray tube, said high voltage power supply comprising a transformer, a rectifier having two electrodes, means connecting said rectifier to said transformer, a point of reference potential, a differential capacitor having two elements, means connecting one element of said differential capacitor between the electrodes of said rectifier, and means connecting another element of said differential capacitor between one electrode of said rectifier and said point of reference potential.

2,629,819
LOAD COMPENSATING NETWORK
Robert B. Dome and Raymond F. Foster, Syracuse, N. Y., assignors to General Electric Company, a corporation of New York
Application September 17, 1949, Serial No. 116,312
5 Claims. (Cl. 250—20)



1. In a modulated carrier wave receiver, the combination of an intermediate frequency amplifier having an inductive anode load impedance connected in circuit therewith, means for supplying an intermediate frequency signal to said amplifier, a rectifier circuit having a resistance falling within a predetermined relatively wide range of resistance values, and means for coupling said rectifier circuit to said anode load impedance so as to detect the modulated components of said intermediate frequency signal comprising, a capacitor connected in series with said rectifier circuit, the series combination thus formed being connected across said load impedance, said combination having a value of effective series capacitive reactance at said intermediate frequency which is substantially equal to the mean value of said rectifier circuit resistance and which resonates with said anode load impedance at said intermediate frequency, whereby rectifier circuits having resistances varying over said wide range of values may be utilized without substantially changing the band width of the network including said anode load impedance, said capacitor and said rectifier circuit.

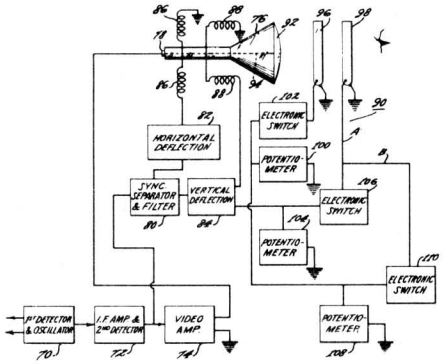
2,631,259
COLOR TELEVISION
Frederick H. Nicoll, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 12, 1950, Serial No. 173,273
15 Claims. (Cl. 315—12)



1. Cathode ray tube apparatus comprising in combination a plurality of electron guns, the electrons projected by one of said guns having a different velocity than the electrons projected by another of said guns, common means for subjecting the beams projected by all of said guns to deflection forces so that said beams scan rasters of different sizes, a plurality of targets toward which said beams of electrons are projected, the targets having characteristics such that successive targets are reached by electrons of a greater velocity than the velocity of the electrons that reached the preceding target.

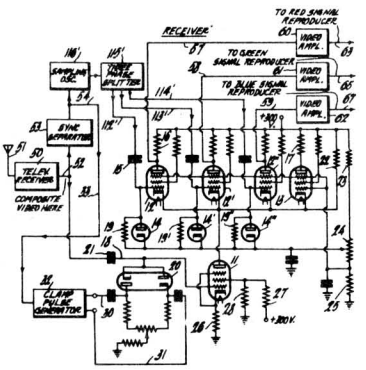
2,632,045
ELECTROCHEMICAL COLOR FILTER
George C. Sziklai, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 31, 1948, Serial No. 46,945
7 Claims. (Cl. 178—5.4)

1. A continuously variable electrochemical color filter comprising a filter cell including a fluid container, a fluid within said container capable of changing color in response to a change in pH within a certain range of pH values, said container being divided into two compartments,



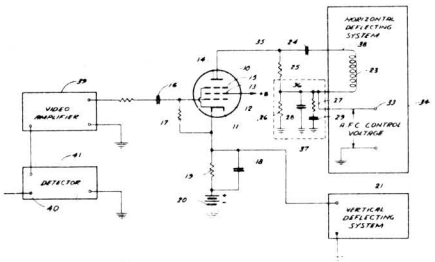
one of said compartments being adapted to be interposed in a light path and having opposing light transmitting walls, the other of said compartments being positioned below said one compartment, a constricted passage connecting said compartments to provide color separation means between said compartments, a pair of electrodes in contact with said fluid, one of said electrodes being adjacent one of said walls and being substantially transparent, the other of said electrodes being within said other compartment, and means for applying a range of D.-C. potentials to said fluid through said electrodes, said range of potentials including those necessary to produce said range of pH values.

2,632,046
ELECTRONIC SWITCH
Edwin A. Goldberg, Princeton Junction, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application January 12, 1950, Serial No. 138,168
16 Claims. (Cl. 178—5.4)



1. An electronic switch comprising a pair of electron discharge devices each having a control electrode, a cathode and an anode, a third electron discharge device having an anode, a cathode and a control electrode, a direct current connection from said last anode to the cathodes of said pair of devices, a direct current connection from the cathode of said third device to ground, whereby said third device is in the common cathode circuit of said pair of devices, means for supplying a potential to said anodes of said pair of devices which is positive relative to ground, a source of modulation coupled to the control electrode of said third device, means for differently biasing the devices of said pair, and means for applying recuring waves of such peak magnitude and polarity to the control electrode of one device of said pair as to overcome at least in part the bias thereon and thereby enable current to pass therethrough.

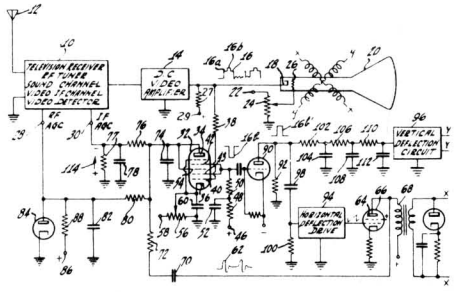
2,632,050
KEYED AUTOMATIC FREQUENCY CONTROL SYSTEM FOR TELEVISION RECEIVERS
Norman W. Parker, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application April 3, 1950, Serial No. 153,550
7 Claims. (Cl. 178—7.5)



6. In a television receiver of the type which includes a source of positive polarity composite video, horizontal and vertical synchronizing signals, a directly triggered vertical deflection system and an indirectly synchronized horizontal deflection system of the type which is controlled by a unidirectional frequency control potential, a circuit for separating synchronizing pulses from the composite signals and for developing the vertical triggering pulses and the unidirectional control potential comprising in combination: a vacuum tube having a separate space current path between each of two electrodes and a common cathode circuit, a control grid in said vacuum tube for controlling space current flow in both of said paths, a source of composite television picture signals coupled to said control grid, integrating circuit means connected into at least one of said two space current paths for producing a vertical deflection system triggering voltage, a positive current source for one of said electrodes, a pulse source which produces pulses simultaneously with the retrace portion of the deflection wave, differentiating means coupled to said pulse source for shaping and narrowing each of said pulses into a waveform having positive pulse portions, said differentiating means having two output terminals, one of which is connected to the other of said electrodes, integrating means coupling the other terminal of said differentiating means to said common cathode circuit for developing a control potential proportional to the space current flow through said other electrode, and biasing means for limiting space current flow in both of said space current paths to the period when a synchronizing pulse is applied to said control grid.

2,632,802
KEYED AUTOMATIC GAIN CONTROL AND SYNCHRONIZING SIGNAL SEPARATOR
Benjamin S. Vilkomerson, Camden, and Clyde W. Hoyt, Pennsauken Township, Camden County, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application October 29, 1949, Serial No. 124,416
12 Claims. (Cl. 178—7.3)

8. In a television receiving apparatus adapted to receive and demodulate a composite signal having a video component, a synchronizing pulse component and blanking component, said synchronizing pulses occurring during said blanking intervals and designated by a constant peak percentage of radio carrier modulation in excess of said blanking component, a combination synchronizing pulse clipper and automatic gain control system comprising in combination, gain control means for controlling the gain of said receiver in accordance with a control potential, a pentagrid converter type electron discharge tube having at least a signal grid, insertion grid, screen grid, cathode and anode, a statically nonconductive load path connected between the anode and cathode of said discharge tube, a source of keying pulses synchronously related to the received synchronizing pulses, means for applying said keying pulses to said load path for producing anode-cathode conduction therethrough, time constant means connected in said load path for developing a gain control potential in accordance with average current flow therethrough, connections from said receiver to said discharge tube signal grid for applying demodulated composite signal thereto, means including a series load impedance for statically biasing said screen grid positively with respect to said cathode, means for biasing said signal electrode sufficiently negative relative to said cathode to permit current flow through said screen electrode load impedance only for signal levels in excess of the composite signal blanking level so as to produce synchronizing pulse voltage variations at said screen electrode, a deflection generator for said television receiver, means for coupling said screen electrode voltage variations to said deflection generator for timing thereof, and connections applying said time constant gain control potential to said gain control means for automatic gain control of said receiver.



11. Apparatus according to claim 8 wherein said means for coupling said screen electrode voltage variations to said deflection generator embraces a second electron discharge tube having a grid, cathode and anode, with said grid being coupled to said first-named discharge tube screen electrode, an anode-cathode load circuit for said second discharge tube, and means for coupling the load circuit of said second discharge tube to said first tube insertion grid.

12. Apparatus according to claim 8 wherein said means for coupling said screen electrode voltage variations to said deflection generator embraces a second electron discharge tube having a grid, cathode and anode, with said grid being coupled to said first-named discharge tube screen electrode, an anode-cathode load circuit for said second discharge tube, and a resistance connected from the anode of said second discharge tube to the signal grid of said first discharge tube.

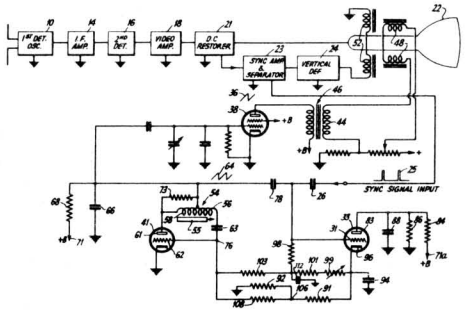
2,633,538

BEAM DEFLECTION CONTROL

Simeon I. Tourshou, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application October 31, 1947, Serial No. 783,303
13 Claims. (Cl. 250—36)

1. In a television system, deflection means operative to produce voltage pulses following each deflection operation, means for partially integrating and attenuating said pulses, a source of sync signals, said sync signals being in the form of pulses, a source of voltage of sawtooth wave form, means for converting said sawtooth voltage wave to parabolic waveform, means to combine said sync signals, said partially integrated and attenuated pulses, and said parabolic wave directly, means responsive to said combining means for producing a control voltage, an oscillator for controlling operation of said deflection



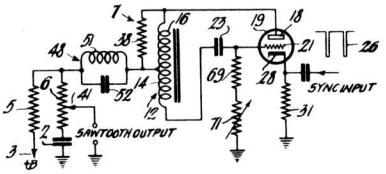
means, and means to apply said control voltage to said oscillator.

2,633,554

BEAM DEFLECTION CONTROL

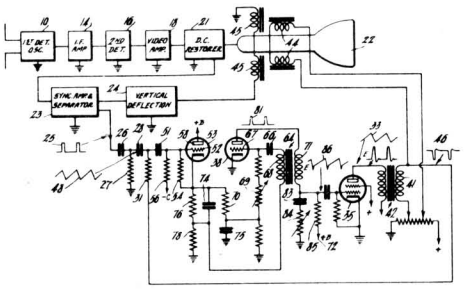
Simeon I. Tourshou, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application January 24, 1948, Serial No. 4,192
5 Claims. (Cl. 315—26)



1. In a television system, an oscillator, means comprising a resistor and a condenser having a sawtooth output wave form, a resonant circuit in a connection between said oscillator and said means, a source of sync signals, said sync signals being in the form of pulses, means to combine said sync signals and said sawtooth, means comprising a vacuum tube biased from said oscillator, said tube being responsive to said combining means thereby to produce a control voltage for said oscillator, and means to apply said control voltage to control the oscillating frequency of said oscillator.

2,633,555
BEAM DEFLECTION CONTROL
Simeon I. Tourshou, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application September 27, 1947, Serial No. 776,464
20 Claims. (Cl. 315—27)

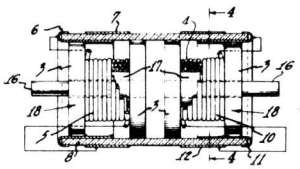


1. In a television system, a device including an oscillator, the rate of which is controllable, for producing a voltage output wave form in which the total potential change in one polarity direction extends over a considerably greater period of time than the corresponding total potential change in the opposite polarity direction, a source of sync signal pulses, means to combine the voltage output wave form with the sync signal pulses in such a phase relationship that the sync signal pulses normally coincide with a polarity change of the voltage output wave, means responsive to that portion of the sync signal pulses that overlaps that part of the voltage output wave form having a potential change in the said one polarity direction for producing a control voltage, and means to apply the control voltage to said oscillator to maintain successive sync signal pulses in the said normal phase relationship with respect to the voltage output wave.

I-C. Converters, Tuners & Tuning Indicators

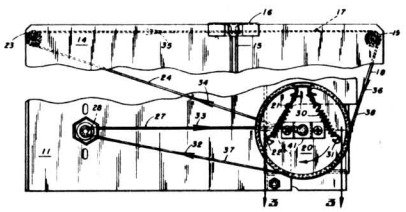
2,626,318
RADIO-FREQUENCY TRANSFORMER AND INDUCTANCE ELEMENT THEREFOR
Alton J. Torre, Westmont, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 4, 1947, Serial No. 777,941
8 Claims. (Cl. 178—44)

1. In a high-Q radio-frequency electrical inductance structure a high permeability magnetic core having a hollow narrow body portion and two spaced flanges integral therewith extending outwardly from the body portion, and an elongated-insulated conductor random wound directly on said body portion against and between said flanges to form a coil, said flanges extending beyond said coil a substantial distance to form a part of a magnetic circuit enclosing all of the turns of said coil, and an auxiliary high permeability magnetic core slidably mounted in said hollow body portion to vary the inductance of said inductance element, said auxiliary core having higher permeability than



said body portion, and an electrostatic shielding structure for said inductance structure comprising a pair of concentric spaced capacitor electrodes, the inner one of said concentric capacitor electrodes surrounding and engaging at least one of the flanges of said inductance structure.

2,630,716
TUNING MECHANISM
Leonard S. Depweg, Hamilton, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application January 23, 1951, Serial No. 207,303
5 Claims. (Cl. 74—10.7)

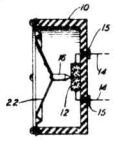


1. In a driving mechanism for a continuous type tuner for a wave signal receiver, the combination of a main pulley, a driven tuning shaft rigidly secured to the rear side of and concentric with said pulley for directly actuating said tuner, a concentric manually-actuated control shaft of smaller diameter than said pulley freely rotatably mounted on the front of and relative to said pulley member, means including a flexible cord for mechanically coupling said control shaft to said pulley, and means for directly securing the ends of said cord to said pulley.

I-D. Loudspeakers and Pick-ups

2,632,062
SEMICONDUCTOR TRANSDUCER
Harold C. Montgomery, Chatham, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application June 15, 1949, Serial No. 99,206
5 Claims. (Cl. 179—121)

1. An electromechanical transducer comprising a body of semiconductive material having therein an NP junction which extends from one face of said body, electrical connections to regions of said body on opposite sides of said junction, an actuating member bearing against said junction at said face and electrically inert with

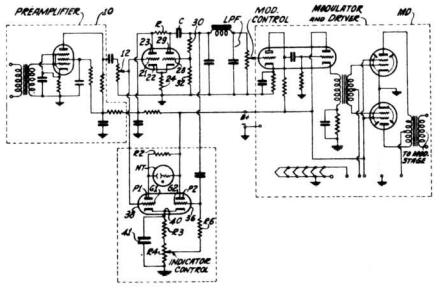


respect to said body, and means for operating said member to vary the pressure thereof against said junction.

SECTION II. COMMERCIAL RADIO APPARATUS

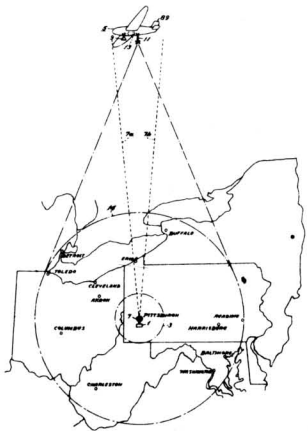
II-A. Sound Transmitters & Receivers

2,624,789
PEAK CLIPPER INDICATOR
William W. H. Dean, Pointe Claire, Quebec, Canada, assignor to Radio Corporation of America, a corporation of Delaware
Application September 14, 1949, Serial No. 115,582
3 Claims. (Cl. 177—311)



3. In apparatus to indicate the amount of clipping which takes place in a clipper amplifier having an input on which voltages to be clipped are impressed and having also an output from which clipped voltages are derived, two electron control devices each having an anode, a cathode and a control electrode, an indicator connected to the anode-cathode circuit of one device and actuated by current flow in such device, connections for applying unclipped voltages obtained from the amplifier input to the control electrode of said one device and clipped voltages obtained from the amplifier output to the control electrode of the other device, means for supplying unidirectional potential to the anode-cathode circuits of the two devices, a common impedance in the anode-cathode circuits of the two devices through which current flows when said devices conduct, means for applying different portions of the potential developed across said impedance as biases to the control electrodes of said two devices, whereby current flow in said other device biases said one device to be non-conductive, the increased current flow in said other device resulting from the application of clipped voltages thereto biasing said one device further in the non-conductive direction.

2,626,348
AIRBORNE RADIO RELAY AND BROADCAST SYSTEM
Charles E. Nobles, Oaklee Village, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application August 8, 1945, Serial No. 609,669
12 Claims. (Cl. 250—15)

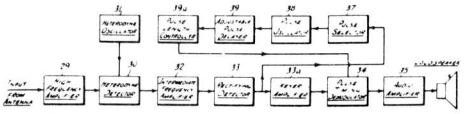


1. In a system for transmitting radio signals, aircraft means adapted to operate at a substantial height relative to the surface of the earth, means for directionally transmitting a radio signal from the surface of the earth towards the

aircraft means, means disposed on the aircraft means for receiving the radio signal, means for transmitting from the aircraft means a radio signal corresponding to, and controlled by, the first-named radio signal, and means responsive to the radio signal received by the receiving means for maintaining the aircraft means adjacent a predetermined location relative to the earth for continuous reception of the first-named radio signal.

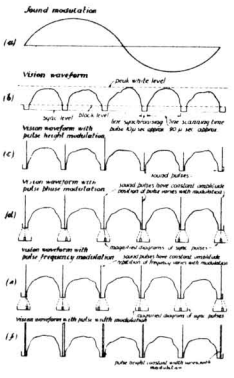
2,632,162
PULSE MULTIPLEX RECEIVER
Clarence W. Hansell, Port Jefferson, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Original application August 4, 1943, Serial No. 497,315, now Patent No. 2,478,920, dated August 16, 1949. Divided and this application May 28, 1949, Serial No. 96,123
18 Claims. (Cl. 343—203)

9. In a receiver for reception of signals wherein a train of substantially regular spaced pulses sequentially representative of different sources of intelligence is transmitted followed by an interval during which no energy is transmitted for each cycle of operation, said interval being longer than the time between a pair of consecutive pulses in each cycle of the train, a control circuit including an oscillator circuit having a capacitor incorporated therein normally subject to being charged to a value at which said oscillator is caused to pulse, a selector circuit to which said train of pulses is applied coupled to said capacitor to discharge the latter in response to each of the applied pulses thereby to permit said oscillator to pulse only during said interval, an adjustable delay circuit comprising a monostable multivibrator coupled to said pulse oscillator to be triggered into the unstable state in response to pulses from said pulse oscillator and restored to the stable state at a time to select a given pulse from each cycle of said train of pulses, to provide an output pulse train for controlling the reception of a single given pulse from each cycle of said train of transmitted pulses.



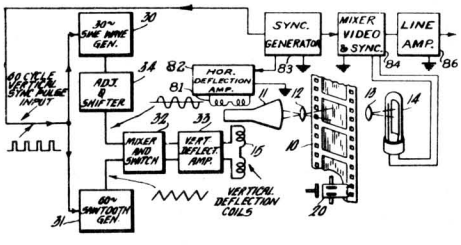
II-B. Television Transmitters (includes facsimile)

2,624,797
TELEVISION SYSTEM
Dennis Illingworth Lawson and Arthur Valentine Lord, Cambridge, England, assignors to Pye Limited, Cambridge, England, a British company
Application October 12, 1946, Serial No. 703,084
In Great Britain October 12, 1945
6 Claims. (Cl. 178—5.6)



4. Transmitting apparatus comprising means for producing a train of synchronising pulses, means for deriving from said synchronising pulses a series of constant amplitude pulses having a mean repetition frequency equal to the repetition frequency of the synchronising pulses, means for width-modulating said derived pulses with an audio frequency, such that the trailing edges of the sound pulses are fixed in time and the leading edges vary with the modulation, means for mixing the modulated sound pulses in opposite phase with the synchronising pulses and in such timed relation that the sound modulated pulses are positioned within the synchronising pulses and spaced from both the leading and trailing edges thereof.

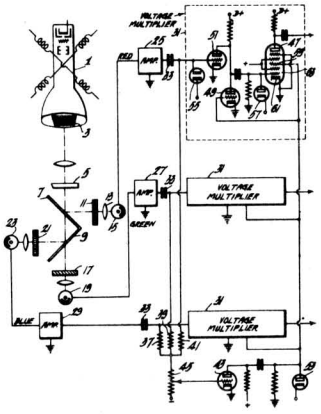
2,625,602
FILM PULLDOWN MECHANISM FOR TELEVISION
Frank J. Somers, Rockville Centre, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application June 26, 1947, Serial No. 757,175
4 Claims. (Cl. 178—7.2)



2. In an intermittent pull down film apparatus adapted to receive for scansion an optically recorded image bearing film, a cathode ray tube having means for generating and directing a cathode ray beam toward a target, means to develop signals under the influence of said beam representative of the optical values of incremental areas of the image recorded on the film, means

to move the film relatively to the cathode ray tube with simple harmonic longitudinal motion, means for deflecting the beam along a line parallel to film movement, means for generating a sawtooth shaped waveform, means for developing a sinusoidal waveform, means for combining said sinusoidal waveform and said sawtooth waveform to develop a waveform to compensate for the simple harmonic longitudinal motion of said film relatively to the cathode ray tube, means to apply said developed waveform to said deflecting means during relative film movement, and means to apply said sawtooth waveform to said deflecting means during stationary film time.

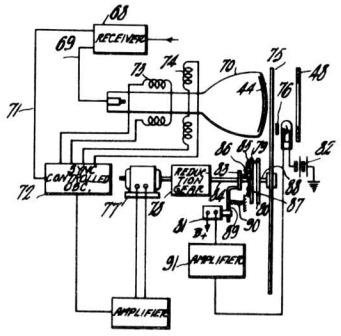
2,627,547
GAMMA CONTROL
Alda V. Bedford, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 29, 1948, Serial No. 23,892
10 Claims. (Cl. 178—5.4)



1. A gamma control for color television systems employing a plurality of different component color image representative video signals comprising in combination a signal mixer for combining a portion of each of said plurality of different component color image representative video signals, said signal mixer having a signal output circuit, a controllable voltage multiplier for each of said component color image representative video signals, means for controlling the gain of said controllable voltage multiplier, said gain control means having a gain control connection, and a connection between said mixer output circuit and said gain control connection.

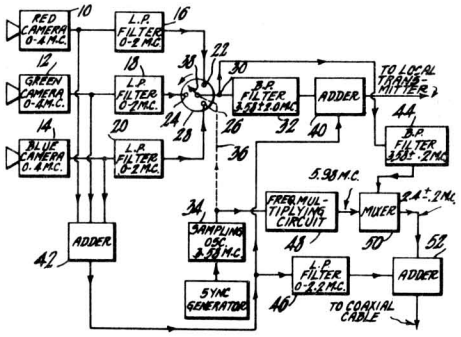
2,627,548
COLOR PHASING SYSTEM
Alfred N. Goldsmith, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application September 10, 1949, Serial No. 115,049
4 Claims. (Cl. 178—5.4)

1. In a color television system utilizing color separation images and in which portions of the reproduced image at the receiver are normally masked from view, means for producing a desired phase relation between the transmitted and reproduced color separation images comprising in combination means at the transmitter for producing color phasing pulses, means adding said pulses to the transmitted signal train at periods corresponding to time intervals during which the scanning beam is scanning one of said portions masked from view, means at the receiver utiliz-



ing said color phasing signals to activate the receiver mosaic at at a corresponding one of said masked portions, means also at the receiver for adjusting said phase relation, and color sensitive means responsive to the activation of said masked portion for operating said phase adjusting means to establish said desired relation.

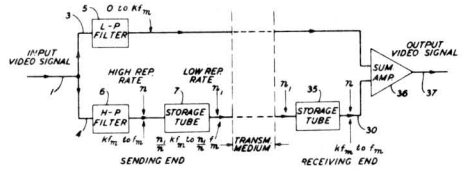
2,627,549
BAND WIDTH REDUCING SYSTEM AND METHOD
Ray D. Kell, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 18, 1950, Serial No. 180,148
6 Claims. (Cl. 178—5.4)



3. In a color television system adapted to represent a color television image by two sets of signals, the first set of signals depicting brightness variations of the television scene and falling in the band f_1 to f_2, the second set of signals depicting color hue and saturation information of points within the scene, the second set of signals being presented by a modulated carrier of frequency f_3 where f_1, f_2, and f_3 represent successively higher values of signal frequency, the combination of low pass filter means having an upper cut off frequency f_2' substantially lower than the value f_2, means for applying said first set of signals to said low pass filter means and heterodyning means for heterodyning the carrier f_3 to a lower

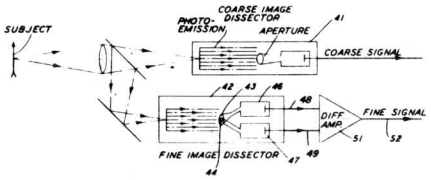
value f_3' such that f_3-f_2 is no less than $f_3'-f_2'$, the value of f_3' being higher than the value of f_2'.

2,629,010
TELEVISION SYSTEM HAVING REDUCED TRANSMISSION BANDWIDTH
Robert E. Graham, Morristown, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application December 30, 1949, Serial No. 136,105
9 Claims. (Cl. 178—6.8)



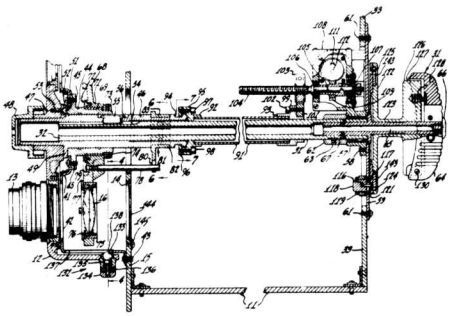
3. A television system comprising means for forming separate signals respectively representative of coarse and fine components of a television image, means for transmitting said coarse components at one repetition rate, means for transmitting said fine components at another, reduced, repetition rate, means at the receiving station to increase the repetition rate of said modified fine components, means to reduce the amplitude of said modified fine components, and means to recombine said coarse and said restored-rate and amplitude-reduced fine components into a complete video signal.

2,629,011
TELEVISION SYSTEM HAVING REDUCED TRANSMISSION BANDWIDTH
Robert E. Graham, Morristown, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application December 30, 1949, Serial No. 136,107
7 Claims. (Cl. 178—6.8)



1. A television system comprising means for forming signals representative of the coarse and fine detail components of the pictorial image, said means comprising two image dissector tubes one of which is adapted to generate a signal representative of only fine detail components and the other is adapted to generate a signal representative of only coarse components of the video information, means for scanning in the fine component image dissector at a fixed number of lines per frame, means for scanning in the coarse component image dissector at a fixed number of lines per frame, means for transmitting said component signals to a receiving station, means at the receiving station to increase the number of scanning lines per frame of the coarse component signal to equal the number of scanning lines per frame of the fine component signal, and means to combine said modified coarse components and said fine components into a complete video signal.

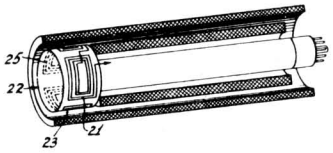
2,632,370
TELEVISION CAMERA TURRET LENS SELECTING AND FOCUSING APPARATUS
Herbert C. Shepard, Woodbury, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 13, 1951, Serial No. 236,577
14 Claims. (Cl. 95—45)



1. In a television camera having a housing provided with an aperture in the front end wall thereof, adjustable optical apparatus comprising, an objective lens turret located externally of said housing adjacent said front end wall and provided with a plurality of objective lenses located at mutually spaced points about the center of said turret, a turret spindle attached at its forward end to the center of said turret and extending rearwardly in said housing, a turret shaft having its forward end portion adjacent to the rearwardly extending portion of said turret spindle and extending rearwardly in said housing, a linkage coupling said turret shaft to said spindle for rotative movement therewith, said linkage being of a slidable character to permit longitudinal movement of said spindle relative to said shaft, lens-selecting mechanism attached to the rear end of said turret shaft extending externally of said housing adjacent the rear end wall thereof and operable to rotate said turret to place any selected one of said objective lenses in line with said front end wall aperture, a focus tube linked at its forward end to said turret spindle for longitudinal movement with said spindle and permitting rotative movement of said spindle relative to said tube, said focus tube extending rearwardly in said housing from said spindle and a focusing mechanism linked to the rear end of said focus tube and extending externally of and adjacent the rear of said housing and operable to move said focus tube and said turret spindle longitudinally in said housing, whereby to vary the spacing between said turret and said front end housing wall in any rotated position of said turret and thereby to vary the focus of any selected one of said objective lenses.

2,632,864
TELEVISION SYSTEM
Daniel O. Hunter, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

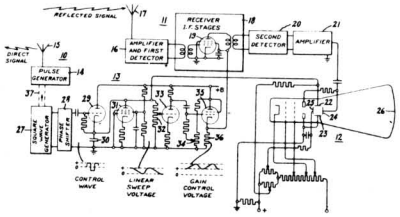
Application June 25, 1952, Serial No. 295,481
9 Claims. (Cl. 315—24)



1. Apparatus including the combination of, an image orthicon camera tube, said image orthicon camera tube including an image section, means providing a magnetic field associated with the image section of said image orthicon camera tube, said magnetic field providing means adapted to produce a varying magnetic field across said image section whereby the electron image on the target of said image orthicon camera tube may be cyclically displaced.

II-C. Radar (includes Direction and/or Position Finding)

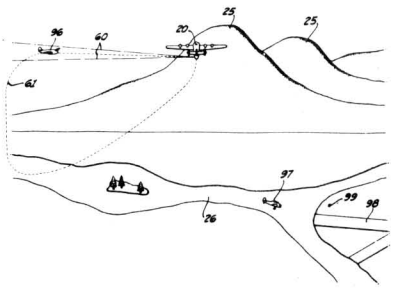
2,624,875
PULSE ECHO SYSTEM WITH TIME SENSITIVITY CONTROL
Franklin G. Patterson, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application October 26, 1948, Serial No. 56,537
9 Claims. (Cl. 343—13)



1. The combination, in a pulse echo system, means to transmit recurrent electromagnetic pulses, a square wave generator synchronous therewith, a condenser having a discharge path, an electron discharge device connected between said generator and said condenser to produce recurrent charging of said condenser during pulses of one polarity of said square wave, said condenser discharging through said path during pulses of opposite polarity of said square wave, means to receive pulses corresponding to said transmitted pulses from remote objects during the intervals between said transmitted pulses, means to increase the sensitivity of said receiving means during the intervals between said transmitted pulses in response to variation in voltage on said condenser, and a phase shifter between said square wave generator and said electron discharge device to delay said increase in sensitivity with respect to said transmitted electromagnetic pulses.

2,625,678
RADIANT ENERGY NAVIGATIONAL DEVICE
Donald K. Allison, Washington, D. C., assignor to General Electric Company, a corporation of New York
Application August 5, 1946, Serial No. 688,407
19 Claims. (Cl. 343—11)

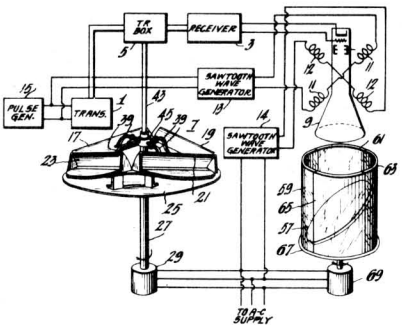
1. A navigational device comprising means to transmit radiant energy and to receive reflections thereof from remote objects, means to form said transmitted energy into a relatively small



pencil beam, means to broaden said beam in one dimension, means to sweep said beam across an area to scan said area for said objects, and means synchronized with said sweep means to cause said beam forming and broadening means to be selectively operative, whereby said area is selectively scanned by said pencil beam or by said broader beam.

2,625,679
RADAR SCANNING SYSTEM
Harley Iams, San Diego, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application September 18, 1947, Serial No. 774,751
2 Claims. (Cl. 343—11)

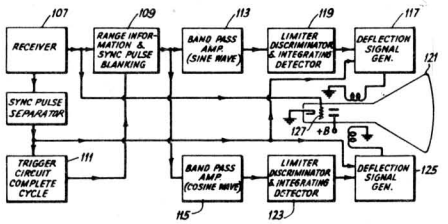
1. A system for detecting and locating reflecting objects in three coordinates, including a transmitter, directive radiator means connected to said transmitter and providing two substantially plane fan-like directive patterns rotating in the same direction about a common axis with the plane of each inclined at an angle with respect to said axis, the angles of inclination being different whereby a reflecting object within the space scanned by said beams provides successively two reflections, one from each of said beams, receiver means responsive to said reflections, and indicator means connected to said receiver to provide two visible displays of the position of said object in two coordinates corresponding to the coordinates of said object in a plane, perpendicular to said common axis, each of said displays corresponding to the interception of one of said beams by said object, and said displays being displaced from each other thereby to introduce the effect of parallax in observing the displays individually, and means for view-



ing said displays stereoscopically to provide the visual impression of depth along the coordinate parallel to said common axis.

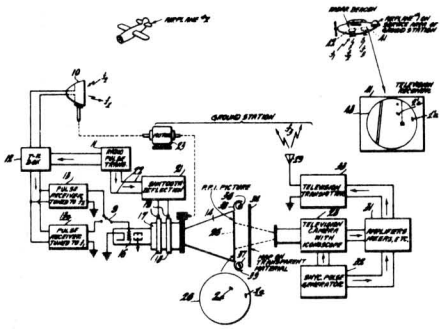
2,626,390
SYNCHRONIZING SYSTEM
Vernon J. Duke, Rockville Centre, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application July 16, 1946, Serial No. 684,056
15 Claims. (Cl. 343—6)

1. In a radio direction and range equipment including a rotatable antenna, a system for transmitting data including range information, antenna orientation data, and cathode ray beam deflection synchronizing pulses to a remote location comprising in combination, two signal generators, the frequencies of one of said signal generators being controlled in accordance with the sine function of the angle of orientation of said antenna from a predetermined reference angle of orientation, and the frequency of the other signal generator controlled with the sine function of the angle from another pretermined



reference angle of orientation and whose range of frequencies differ from each other, means connected to both of said signal generators to transmit a signal from each of said generators, said synchronizing pulses, and said range information sequentially, a horizontal deflection generator, a vertical deflection generator, and means for controlling the frequency of said deflection generators with said synchronizing pulses, and means for controlling the amplitude ratio of said deflection generators with the frequency of the output signals of said signal generators.

2,632,157
RADIO NAVIGATION SYSTEM
Loren F. Jones, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application July 31, 1945, Serial No. 607,999½
31 Claims. (Cl. 343—6)

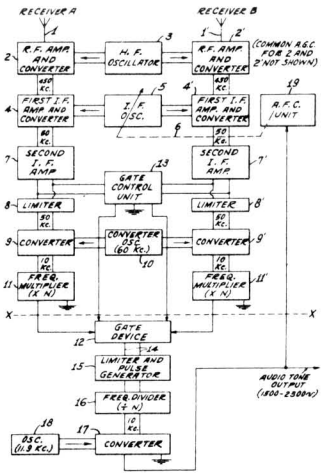


1. A navigation system for craft within the service area of a ground station, said system comprising a ground station which includes a radar system for obtaining the distance and azimuth of each of said craft and which further includes means for transmitting said distance and azimuth information to said craft, television transmitting means for also transmitting to said craft a map of at least a portion of said service area, receiving means carried by each of said craft for receiving said map and said distance and azimuth information, means carried by each of said craft for reproducing said map and said distance and azimuth information as a picture having spots superimposed on said map showing the positions of said craft on said map, and means for identifying at a craft the particular spot among the plurality of spots in said picture which corresponds to said last-mentioned craft.

II-D. Telegraphy

2,624,834
DIVERSITY FREQUENCY SHIFT RECEPTION
John B. Atwood, Riverhead, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application September 29, 1949, Serial No. 118,618
6 Claims. (Cl. 250—8)

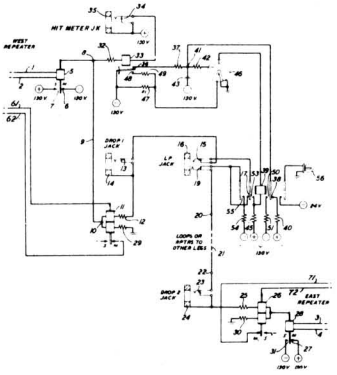
1. A diversity system for receiving frequency shifted carrier energy of radio frequency, comprising a pair of radiant energy intercepting devices, a separate receiver coupled to each of said devices, said receivers each including converting means for converting the energy in each receiver to a frequency in the intermediate frequency range, both said converting means being of the heterodyne type and both being supplied with heterodyning energy, means coupling the



intermediate frequency output of each of said converting means to a respective frequency multiplier having a multiplication factor of N, means coupling the outputs of said multipliers to a common gate device which is controllable to pass one or the other of such outputs to a common output circuit, signal strength sensing means excited by the signals in each of said receivers for producing a control potential the character of which depends upon which of the two signals is stronger, means for controlling said gate device by said control potential, whereby such device passes the stronger of the two multiplier outputs to said circuit, and means coupling a frequency divider having a division factor of N to said circuit, said last-named means including a pulse generator for converting the substantially sinusoidal outputs of said gate device and of said multipliers to pulses for application to said divider.

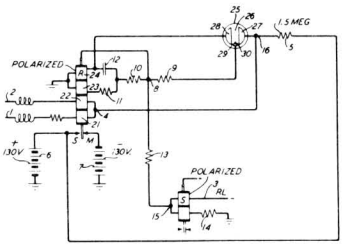
2,625,608
OPEN TELEGRAPH LINE INDICATOR
Frank Harold Hanley, Butler, N. J., assignor to American Telephone and Telegraph Company, a corporation of New York
Application July 27, 1948, Serial No. 40,952
3 Claims. (Cl. 178—69)

1. A direct-current telegraph system having a telegraph line, a plurality of direct-current telegraph repeaters in said line, each of said repeaters comprising a polar telegraph transmit-



ting relay connected directly to said line for impressing direct-current marking and spacing signal conditions directly on said line, each of said repeaters comprising also a polar telegraph receiving relay directly connected to said line, responsive to direct-current marking and spacing signal conditions incoming directly from said line to said receiving relay, a telegraph open line indicator circuit connected intermediate a first and a second of said repeaters and directly to a first receiving relay in a first of said repeaters, signal means in said circuit operative in response to an open condition of said line, and a responsive protracted spacing condition of said first relay, to indicate that said line is open, said means comprising a second relay slowly responsive to said spacing condition of said first relay, a space discharge device responsive to said second relay, a third relay for transmitting a permutation code signal combination responsive to said space discharge device, an input circuit for said device and a condenser-resistance timing circuit connected to said input circuit, said timing circuit responsive to said third relay.

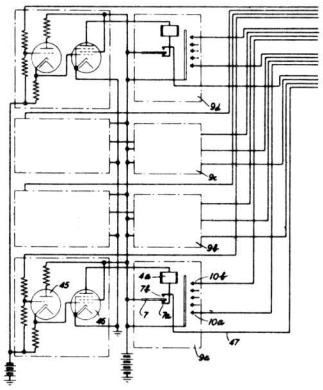
2,625,609
TELEGRAPH REPEATER
Frank H. Hanley, Butler, N. J., assignor to American Telephone and Telegraph Company, a corporation of New York
Application May 15, 1951, Serial No. 226,509
5 Claims. (Cl. 178—70)



1. In a telegraph system a relay, an armature thereon, a vibrating circuit connected to said relay to accelerate transition of said armature between contacts, said relay subject to abnormal vibration of said armature, and a circuit connected to said relay to prevent said abnormal vibration, said circuit comprising a space discharge device responsive to a condition of said relay tending to produce said abnormal vibration and armature holding means on said relay responsive to said space discharge device.

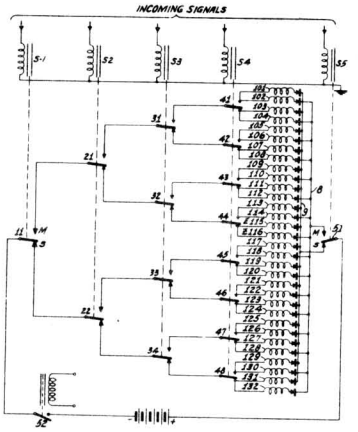
2,626,994
MULTIPLEX TELEGRAPH SYSTEM
Allan Weaver, Port Washington, N. Y., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 19, 1949, Serial No. 128,395
17 Claims. (Cl. 178—50)

1. In a multiplex telegraph system, a plurality of permutation code signal sources, a transmitting distributor having a plurality of electronic gate circuits associated with said signal sources for transmitting start, code and stop impulses, a closed electronic counting ring for sequentially activating the gate circuits of the said transmitting distributor, a first electronic oscillator adapted to operate the said counting ring, a receiving distributor having a plurality of elec-



tronic gate circuits, a transmission medium coupling said transmitting and receiving distributors, a plurality of telegraph printing devices equal in number to the said plural signal sources, said telegraph printing devices being adapted to receive signals discretely from the said signal sources through the gate circuits of the said transmitting and receiving distributor, an open end electronic counting ring having initial, intermediate and final segments activating the gate circuits of the said receiving distributor, a second electronic oscillator adapted to operate the said second counting ring, means for synchronizing said closed and open end counting rings, said latter means comprising means to derive a synchronizing pulse from the said transmitting distributor through the transmission medium, and means to apply said synchronizing pulse to the initial segment of the said open end electronic counting ring, whereby said counting ring is cyclically energized.

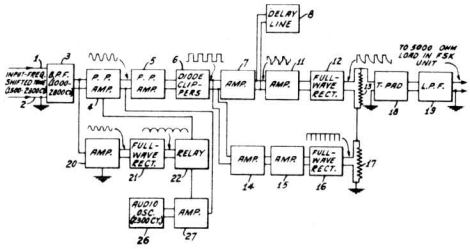
2,628,277
RELAY TYPE SELECTING CIRCUIT ARRANGEMENT
James Albert Spencer, Teaneck, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 21, 1949, Serial No. 134,193
5 Claims. (Cl. 178—33)



5. A code translator circuit arrangement including a single direct current energizing circuit, a plurality of signal relays having cascaded contact assemblies comprising a first signal input relay having a contact assembly comprising an armature connected to one end of said single energizing circuit and front and back contacts associated with said armature, an intermediate signal input relay having a contact assembly comprising armatures connected to the front and back contacts of the preceding signal input relay and having front and back contacts associated therewith, a plurality of output signal relays having terminals of the windings thereof connected in pairs, said pairs of input terminals being connected individually to the front and back contacts of said intermediate signal input relay contact assemblies, rectifier elements individually connected in series circuit with the windings of each of said output signal relays, a conductor connecting the rectifiers connected to an output signal relay of each pair of output signal relays, a bus connecting the rectifiers connected to the other output signal relays of each pair and a final signal input relay having a contact assembly comprising an armature connected to the other end of said single energizing circuit and having front and back contacts associated therewith, said front and back contacts being connected to said conductor and said bus to energize one only of said plurality of output signal relays in response to actuation of said signal input relays.

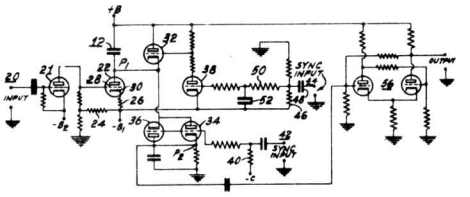
2,629,775
SIGNAL CONVERTER
Hallan E. Goldstine, Port Jefferson Station, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application June 17, 1950, Serial No. 168,771
8 Claims. (Cl. 178—66)

1. In an arrangement for converting a periodic input wave of variable frequency to a direct voltage output the amplitude of which is proportional to the frequency of the input wave, means for clipping said input wave to produce a substantially square wave, means receptive of said square wave for producing a pulse of predetermined constant duration for each half-cycle of said square wave, the average energy in the pulses



being proportional to the number of pulses per second and successive pulses being of opposite relative polarity, means for rectifying said pulses in a full-wave manner, means for deriving from said square wave a constant bucking voltage, and means for combining in opposition said bucking voltage and the output of said rectifying means.

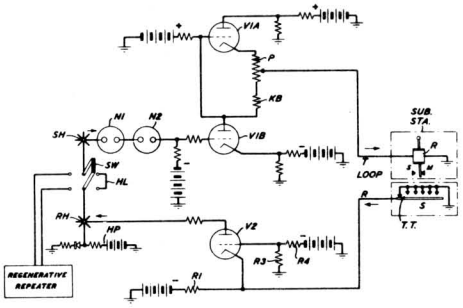
2,632,053
INTEGRATING TELEGRAPH SIGNAL DETECTOR
Philip Eckert Volz, Florham Park, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 27, 1949, Serial No. 107,017
15 Claims. (Cl. 178—70)



1. A circuit arrangement for detecting telegraph signals transmitted as a train of individual signal elements of different nature, including an electron discharge device constituting a controllable electron path, means to apply said signal elements to said electron discharge device to render the same conducting when said elements are of one nature and to block the same when said elements are of another nature, a charge storage device coupled in circuit with said electron discharge device to develop a charge varying proportionally to the integral of the amplitude over the duration of said elements of one nature, and a pair of controllable unilateral impedance devices coupled across said charge storage device to provide conduction in opposite directions, one of said unilateral impedance devices conducting when said elements are of said one nature and the other conducting when said elements are of said other nature to produce pulses of current having polarity indicative of the nature of said elements.

2,632,054
HUB TELEGRAPH REPEATER
Frank Harold Hanley, Butler, N. J., assignor to American Telephone and Telegraph Company, a corporation of New York
Application July 30, 1951, Serial No. 239,339
5 Claims. (Cl. 178—73)

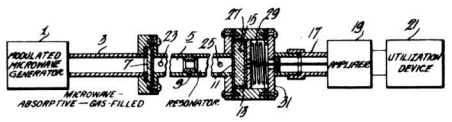
1. In a hub telegraph repeater system, a subscriber hub telegraph repeater circuit, said circuit having a receiving repeater and a sending repeater, said receiving repeater completely separated from said sending repeater, a subscriber telegraph station, a subscriber telegraph transmitter and a subscriber telegraph receiver at said station, a telegraph hub, a first telegraph channel extending from ground at said station through said telegraph transmitter and said re-



ceiving repeater to said hub, a second telegraph channel extending from said hub through said sending repeater, and said telegraph receiver to ground at said station.

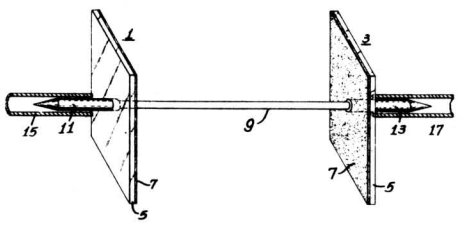
II-E. Other Apparatus (includes wave guides, etc.)

2,624,840
MICROWAVE DETECTOR
William D. Hershberger, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application May 28, 1945, Serial No. 596,243
15 Claims. (Cl. 250—27)



1. A microwave detector comprising a cavity resonator enclosing a microwave absorptive gas, means for introducing microwave energy to be detected into said resonator to vary the pressure of said gas therein, and an electrical translating device subjected to said gas pressure within said resonator for directly converting said pressure variations into electrical energy characteristic of said microwave energy.

2,625,605
RESONATOR
Charles H. Chandler, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 14, 1948, Serial No. 21,080
10 Claims. (Cl. 178—44)



6. A resonator for high frequency radio waves, including two reflectors with plane reflecting surfaces facing each other and spaced apart by a distance which is a plurality of wavelengths of radiant energy of the frequency at which said

resonator is to resonate, one of said reflectors having a central aperture, coupling means for supplying high frequency energy to or absorbing high frequency energy from the space between said reflectors through said aperture, and means for directing said energy back and forth between said reflectors to prevent escape thereof by radiation including a dielectric rod having an extension through said aperture, said extension serving also as part of said coupling means.

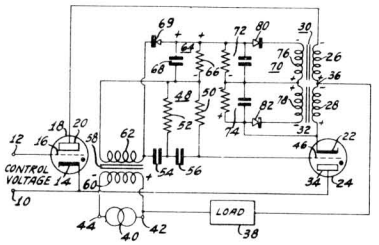
2,625,676

ELECTRICAL CONTROL CIRCUITS

Arthur E. Konick, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 17, 1950, Serial No. 144,616

13 Claims. (Cl. 323—24)



1. A control circuit comprising first and second vapor discharge tubes each having an anode, a cathode, and a control element and connected back-to-back with each anode to the cathode of the other tube, a load, means for connecting a source of alternating current of known frequency, said load, and said back-to-back connected tube combination serially, a control biasing network connected in biasing relationship between said second tube cathode and control element and connected to have a biasing voltage developed across said network of one polarity for load current drawn through one of said tubes and of the other polarity for load current drawn through the other of said tubes, and further means to impress an alternating current biasing signal on the control element of said second tube, whereby the conduction periods of said second tube tend to vary in the same sense with that of said first tube.

2,627,021

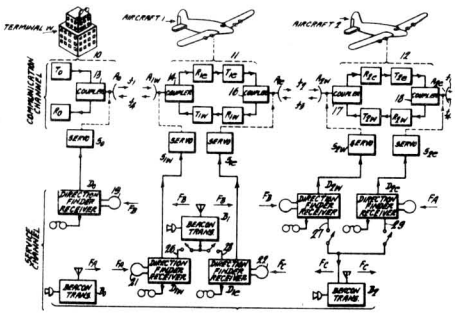
AIRBORNE TRANSOCEANIC RADIO RELAY SYSTEM

Clarence W. Hansell, Port Jefferson, N. Y., and Donald S. Bond, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application July 7, 1949, Serial No. 103,342

12 Claims. (Cl. 250—15)

11. Radio relay apparatus and antenna directional control apparatus therefor, said relay and control apparatus to be carried by an aircraft to function as one relay station of a chain of relay stations, said radio relay apparatus comprising a radio receiver and a directional receiving antenna therefor and further comprising a radio transmitter and a directional transmitting



antenna therefor, said control apparatus comprising a radio beacon transmitter and an antenna therefor for radiating a radio wave therefrom, said control apparatus further comprising an automatic direction finder and means coupling said finder to said directive receiving antenna to control its direction and further comprising a second automatic direction finder and means coupling said second finder to said directive transmitting antenna to control its direction.

2,627,551

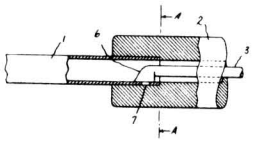
ULTRAHIGH-FREQUENCY TRANSMISSION STRUCTURE

Harry B. Taylor, Ferry Hill, and Alan J. Watts, Cambridge, England, assignors to General Electric Company, a corporation of New York

Application March 23, 1950, Serial No. 151,436

In Great Britain December 15, 1948

1 Claim. (Cl. 178—44)



A wave-guide-to-coaxial line transformer structure comprising a coaxial transmission line having an outer sheath and an inner conductor, a rectangular wave guide, said line and guide having abutting ends aligned on a common axis, means forming a continuous circumferential junction between said sheath and the walls of said guide, said inner conductor extending into the end of said guide, and a frusto-conical member forming an electrical connection from said inner conductor to the center of the inner face of one wider wall of said guide, said member having its axis inclined at substantially 105 degrees to the axis of said conductor and having its sides subtending an apical angle of substantially 30 degrees.

2,627,932

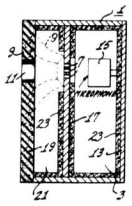
ACOUSTIC FILTER FOR MICROPHONES

John E. Volkmann, Haddon Heights, and Maxim L. Graham, Moorestown, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application January 30, 1947, Serial No. 725,332

5 Claims. (Cl. 181—34)

1. In a sound translating system, the combination of a casing having a wall therein which di-



vides said casing into a pair of cavities, said wall being provided with an opening therein which affords communication between said cavities, a mouthpiece carried by said casing in association with said opening, said mouthpiece affording communication between the exterior of said casing and one of said cavities, and a microphone immersed in the other of said cavities, the volume of said other cavity being large compared to that occupied by said microphone whereby to provide a large acoustic capacitance about said microphone.

2,628,279

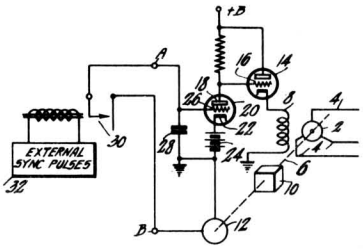
AUTOMATIC PHASE CONTROL CIRCUIT

John H. Roe, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 31, 1949, Serial No. 84,705

7 Claims. (Cl. 178—69.5)

1. A phase shift system comprising a source of a first group of pulses, a synchronous motor, a direct current field winding associated with said synchronous motor, means for supplying direct current to said winding, means for generating another group of pulses in constant phase relaship with the rotation of said synchronous motor, a means for developing an output control voltage having a magnitude determined by the phase re-



lationship between said two groups of pulses, and a means for utilizing said control voltage to vary the current in said winding in such manner as to maintain the phase between the two groups of pulses at a constant value.

2,628,289

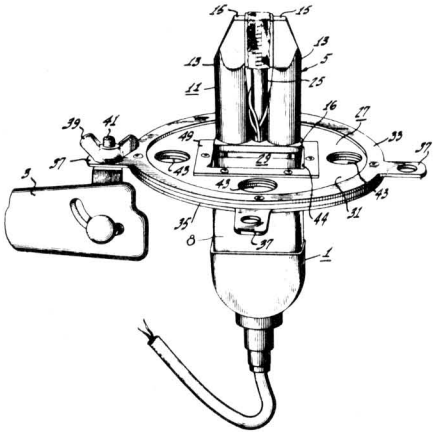
SUSPENSION SYSTEM FOR DYNAMIC MICROPHONES

Harry F. Olson, Princeton, and John Preston, Metedeconk, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application October 29, 1949, Serial No. 124,462

7 Claims. (Cl. 179—115.5)

1. In a dynamic microphone, the combination of a motor assembly comprising means for producing a magnetic field and vibratile conductor means mounted in said magnetic field for vibration in response to sound wave energy, means associated with at least a portion of said vibratile conductor means constituting a terminating



acoustic resistance therefor and including a supporting device, and flexible means connecting said motor assembly to said supporting device thereby to flexibly support said motor assembly from said supporting device.

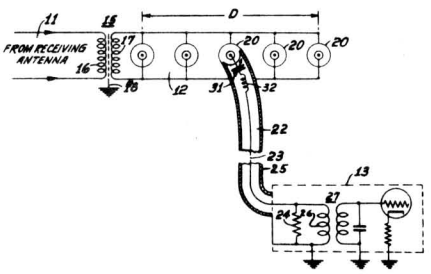
2,628,312

RECEIVING STATION ANTENNA DISTRIBUTION SYSTEM

Harold Olaf Peterson and Bertram A. Trevor, Riverhead, N. Y., assignors to Radio Corporation of America, a corporation of Delaware

Application May 24, 1949, Serial No. 95,028

18 Claims. (Cl. 250—33.69)



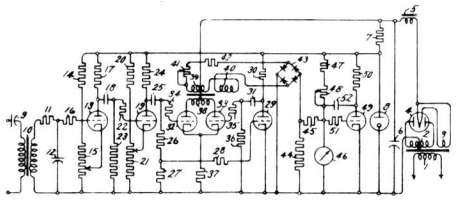
14. An antenna distribution system including at least one open ended transmission line, and apparatus for coupling a plurality of radio frequency transducers selectively to said transmission line substantially without interaction between the transducers, said apparatus comprising a plurality of coupling units having input and output terminals, means to connect said input terminals across said transmission line, the spacing between the connection of the first and last of said input terminals along said transmission line being substantially less than a quarter wavelength at a desired operating frequency, and means to connect ends of said transducers to any one of said output terminals.

2,629,008

FREQUENCY-TYPE TELEMETER RECEIVER

Edward E. Lynch, Wakefield, and Bernard D. Leete, Nahant, Mass., assignors to General Electric Company, a corporation of New York

Application July 13, 1948, Serial No. 38,488
7 Claims. (Cl. 175—368)



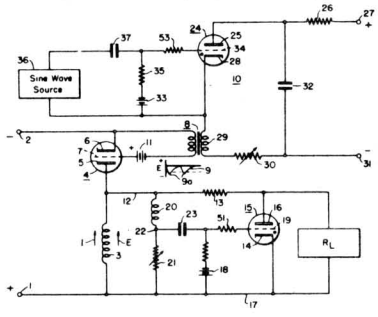
1. In a frequency-type telemeter receiver, a frequency measuring circuit comprising, a push-pull vacuum tube amplifier stage adapted to receive an alternating signal whose frequency is to be measured, a bridge-type rectifier, a pulse forming transformer having its primary connected to the output of said push-pull amplifier stage and its secondary connected to the input of said rectifier, said pulse transformer having a saturable core for providing voltage pulses of constant amplitude and duration responsive to changes in polarity of said alternating signal, and a D.-C. measuring instrument connected to measure the integrated value of the rectified voltage pulse output of said rectifier.

2,629,823

PULSE GENERATOR

Paul E. Grandmont, East Orange, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania

Application May 7, 1949, Serial No. 91,929
8 Claims. (Cl. 250—27)



1. A pulse generator comprising in combination, a vacuum tube having a cathode and an anode, a source of direct current voltage, an inductor connected in series with said anode and cathode across said source of direct current voltage, means normally maintaining said vacuum tube conductive to provide current flow in said inductor, means for periodically blocking said vacuum tube to form the leading edge of a pulse, a load circuit connected in series with said inductor, a normally blocked electronic valve shunted across said load circuit, and means for rendering said electronic valve conductive at a predetermined time interval after blocking of said vacuum tube to form the trailing edge of said pulse.

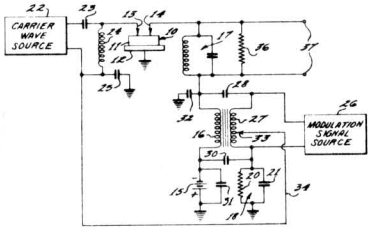
2,629,858

TRANSISTOR AMPLITUDE MODULATOR

Leslie L. Koros, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application December 29, 1950, Serial No. 203,397
5 Claims. (Cl. 332—31)

1. An amplitude modulation system comprising a semi-conductor device including a semi-conducting body, a base electrode, an emitter electrode and a collector electrode in contact with said body, means applying operating potentials to said electrodes, a carrier wave source coupled between said emitter and base electrodes for impressing said carrier wave thereon, a modulation signal source coupled between said collector and base electrodes for impressing said modulation signal thereon, a resonant output circuit coupled between said collector and base electrodes and tuned to the frequency of said carrier wave for



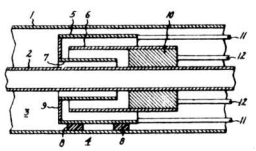
deriving therefrom an amplified carrier wave amplitude modulated in accordance with said modulation signal, and a circuit connection between said signal source and said emitter and base electrodes for impressing a predetermined portion of said modulation signal on said emitter and base electrodes simultaneously with said carrier wave, thereby to modulate said carrier wave impressed on said device to a predetermined extent and in a predetermined direction as provided by said modulation signal.

2,630,487

APPARATUS FOR INSULATINGLY TERMINATING CONCENTRIC CONDUCTOR RESONATORS

Anatole M. Gurewitsch, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application July 22, 1949, Serial No. 106,284
1 Claim. (Cl. 178—44)



In an ultra-high frequency system comprising a pair of concentric conductors, means for insulatingly terminating said conductors to block wave propagation along the space between them which comprises a pair of concentrically disposed conductive members interposed between said conductors, a first transmission line section being defined between one of said conductors and one of said conductive members, a conductive annulus secured to corresponding ends of said conductive members so as to close the annular space therebetween, an annular

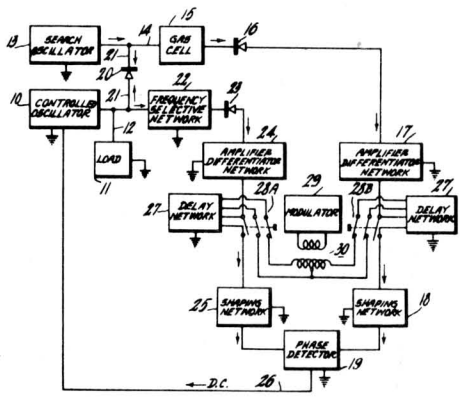
metallic member disposed in axially slidable relationship with respect to the other of said conductors, a third concentric conductive member having one end thereof secured to said annular member and having the other end thereof interposed between said pair of conductive members, said third conductive member being spaced from said pair of conductive members and said conductive annulus, a double reverse second transmission line section being defined between the other conductor and said other of said pair of conductive members and between said third conductive member and said pair of conductive members, said second section having an effective electrical length differing by one-half wavelength of an odd multiple thereof from the electrical length of said first section at the frequency of electromagnetic waves traveling therethrough.

2,631,269

METHOD AND SYSTEM FOR FREQUENCY-MODULATING STABILIZED OSCILLATORS

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

Application September 14, 1949, Serial No. 115,698
19 Claims. (Cl. 332—19)



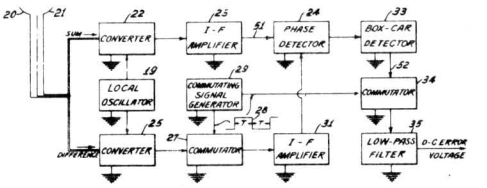
12. A frequency-modulated, frequency-stabilized oscillator system comprising an oscillator, a high precision frequency standard, a search oscillator for repeatedly sweeping a range including the resonant frequency of said standard, a demodulator for producing a series of pulses each occurring as the search oscillator frequency sweeps the resonant frequency of said standard, means including a mixer and a frequency-selective network for producing a series of pulses each occurring as the beat frequency of said oscillators sweeps a predetermined frequency, a phase detector having input circuits upon which said two series of pulses are respectively impressed for producing a unidirectional output voltage varying in accordance with variations in the phase relation of the pulses of the respective series, delay means in at least one of said input circuits, modulating means for varying the delay characteristic of said delay means so to vary the phase relation between pulses of the respective series in accordance with the modulation, and means for applying said output voltage to stabilize the mean frequency of the first-named oscillator and to vary the instantaneous frequency thereof in accordance with the modulation.

2,631,279

ERROR SIGNAL CONTROL CIRCUIT

Waldon P. Bollinger, Haddonfield, N. J., and Harry Sohon, Havertown, Pa., assignors to Radio Corporation of America, a corporation of Delaware

Application June 21, 1949, Serial No. 100,375
8 Claims. (Cl. 343—16)



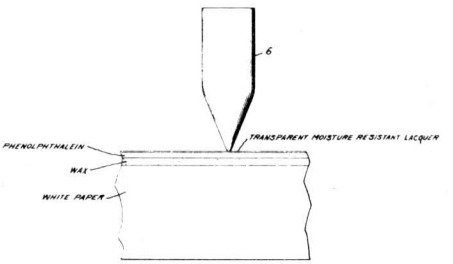
1. An electrical control circuit comprising: a phase detector, means for applying a phase reference signal of known frequency to said detector, means for applying an error signal of the same said frequency to said detector, said error signal having a phase with respect to said reference signal indicative of the departure of an associated controlled system from its desired performance, means for periodically reversing the phase of said error signal at a rate less than the frequency of said reference signal and prior to its application to said detector, means for synchronously with the first named phase reversal reversing the phase of the output of said phase detector, and means for filtering out the alternating current component of the output of said last named phase altering means.

2,631,918

COLOR FORMING CHEMICAL REACTION RECORDER

Walter F. Kozak, Swampscott, Mass., assignor to General Electric Company, a corporation of New York

Application June 14, 1951, Serial No. 231,608
5 Claims. (Cl. 346—111)



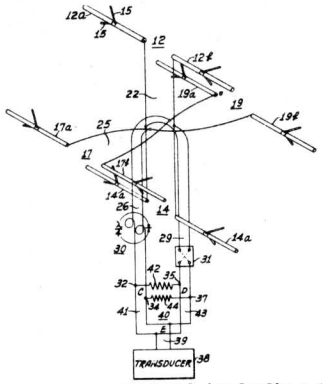
1. Recording apparatus comprising a light-colored, dry paper chart having a recording surface treated with phenolphthalein and a stylus in contact with, and movable relative to, the treated surface of said chart, said stylus carrying a sodium alloy in contact with said treated surface and producing a chemical reaction with the phenolphthalein without the aid of electricity, said chemical reaction changing the color of the phenolphthalein to leave a record on the chart of the movement of the stylus relative thereto.

2,632,108

DIPLEXER ARRANGEMENT

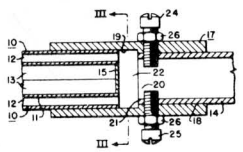
Oakley McDonald Woodward, Jr., Princeton, N. J., assignor to Radio Corporation of America, a

corporation of Delaware
Application July 28, 1949, Serial No. 107,208
20 Claims. (Cl. 250—33.53)



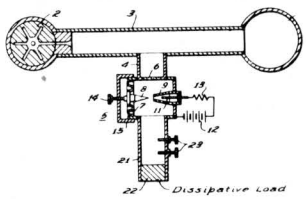
1. A diplexer arrangement including first, second and third pairs of terminals, a pair of resistance elements intercoupling terminals of said first pair of terminals and corresponding terminals of said second pair of terminals, and two lengths of transmission line respectively intercoupling corresponding terminals of said first and said third pairs of terminals and said second and said third pairs of terminals, said elements having resistance values high with respect to the direct current resistance of said lengths of transmission line.

2,632,805
RE-ENTRANT WAVE GUIDE COUPLING DEVICE
Clyde E. Vogeley, Jr., Pittsburgh, Pa., and William L. Stahl, Chicago, Ill., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 23, 1949, Serial No. 106,434
15 Claims. (Cl. 178—44)



1. In combination, two pairs of ridged wave guides, the wave guides of each pair having their sides in which external troughs are formed by their reentrant portions, in contact, with the troughs extending parallel and forming a common passage between the wave guides, the wave guides of each pair having sides perpendicular to the sides in which the troughs are formed, extending parallel to and in contact with corresponding sides of the wave guides of the other pair, a standard wave guide in longitudinal alignment with said wave guides and having its end nearest said ridged wave guides spaced from the ends of said ridged wave guides nearest said standard wave guide, conductors substantially filling the ends of said passages at said ends of said ridged wave guides, and a collar of conductive material extending around and in contact with said ridged and standard wave guides.

2,632,854
RESONANT CAVITY DRIVE
William Altar, Wilkinsburg, and John W. Coltman, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application December 18, 1947, Serial No. 792,586
4 Claims. (Cl. 250—36)



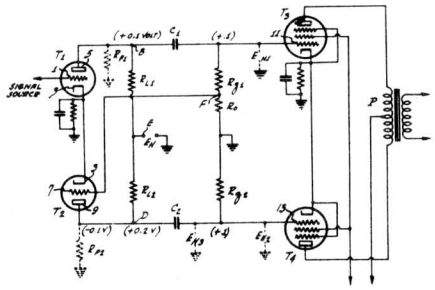
1. In combination with a resonant cavity, a wave guide and an oscillation generator of the cavity type connected to supply energy to said cavity through said wave guide, said cavity being of the type which when connected as aforesaid to said generator tends to cause said generator to oscillate in undesired modes when the electromagnetic energy of said generator is below a predetermined level, and normally open switching means effectively in series in the wave guide path between said generator and said cavity, said switching means comprising elements responsive to the energy flowing from said generator when it exceeds said predetermined level to close said path.

SECTION III. CIRCUITS OF GENERAL APPLICATION

III-A. Amplifiers

2,626,321
PHASE INVERTER CIRCUITS
Wen Yuan Pan, Merchantville, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application May 29, 1948, Serial No. 30,017
4 Claims. (Cl. 179—171)

1. In an amplifier phase inverter system having a single sided signal input and a divided output circuit, first and second thermionic devices each having a control electrode, an anode and a cathode, a power source having a point of high positive potential for supplying direct current with a fluctuating voltage component to said



anodes, said first device having its input electrode connected to said single sided input circuit and its output electrode to one side of said divided output circuit, a shunt potential divider in said one side having a relatively low potential point between a high resistance section R_{g1} and a low resistance section R_0, said portions having a ratio such that the sum of R_{g1} and R_0 to R_0 substantially equals the amplification factor of said second device, said second device having its input electrode connected to said point in said potential divider in said one side of said divided output circuit for picking up amplified signal voltage and a portion of the fluctuating component, which component appears at the anode of said second device in opposite phase and at a voltage substantially equal to that on the anode of said first device, first and second impedance elements connecting the anodes of said first and second devices, respectively, to said power source point, said second element being smaller in impedance than said first element in a ratio to impress substantially twice the fluctuating component on the anode of said second device to produce resultant fluctuating components of substantially like magnitude and phase on both sides of said divided output circuit.

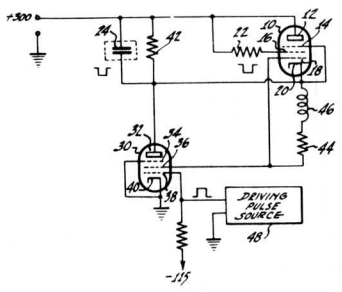
2,628,290

AMPLIFICATION SYSTEM

Igor E. Grosdoff, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 24, 1951, Serial No. 227,990

6 Claims. (Cl. 179—171)



2. A system for driving a capacitive load comprising a first tube having anode, cathode and control grid electrodes, a second tube having anode, cathode, control grid and screen grid electrodes, said first tube cathode being connected to said second tube anode, said capacitive load being connected across one of said tubes, means to apply potentials to said first and second tubes to maintain said first tube conductive and said second tube non-conductive, means to apply a driving signal to said second tube to render said second tube conductive, means connecting said second tube screen grid to said first tube cathode to generate a cut-off bias for said first tube responsive to current being drawn by said screen grid, and means to apply said cutoff bias to said first tube control grid.

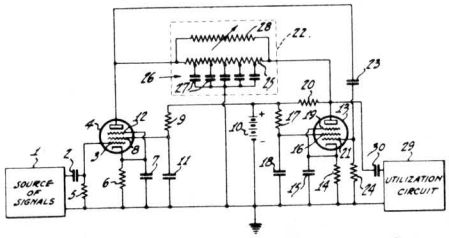
2,629,025

HIGH GAIN SELECTIVE SIGNAL AMPLIFIER SYSTEM

Walter van B. Roberts, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application April 29, 1949, Serial No. 90,292

10 Claims. (Cl. 179—171)



1. A high gain selective signal amplifying system, comprising a signal amplifier stage having input and output circuits, a load circuit connected in shunt with said amplifier stage including an electronic tube having an anode, a cathode and a control grid, feedback means comprising a regenerative network having a resistive element thereof serially connected, between said anode and said control grid, a degenerative network shunting said regenerative network, said regenerative network being of a character tending to produce oscillatory operation of said tube at a predetermined frequency, said degenerative network being effective to prevent oscillatory operation of said tube, means for connecting a source of signal-modulated carrier waves having said predetermined frequency to the input circuit of said amplifier stage, means coupling the output of said amplifier stage to said control grid, the space current source for said amplifier stage coupled through said resistance element of said regenerative network, and an impedance element coupling said space current source to the anode of said tube and means for connecting a utilization circuit to said anode.

2,629,026

MUTING SYSTEM FOR SIGNAL AMPLIFIERS

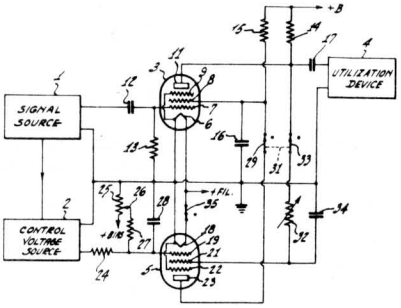
Joseph R. Kilgore, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 28, 1949, Serial No. 96,032

7 Claims. (Cl. 179—171)

1. In a signal amplifying system, a signal amplifying electronic tube and a muting electronic tube, each of said tubes having a cathode electrode, a control electrode, a screen electrode and an anode electrode, means for connecting the control electrode of said signal amplifying tube to a source of variable amplitude signals, circuit means supplying anode-to-cathode current to said tubes to develop voltages at said anode electrodes varying in magnitude in response to amplitude variations of the anode-to-cathode currents in the respective tubes, respective circuit

means cross-connecting the anode electrodes of each of said tubes to the screen electrodes of the other of said tubes and effective upon current conduction in either of said tubes to prevent current conduction in the other of said tubes, a source of automatic gain control voltage, a first circuit means coupled between said automatic



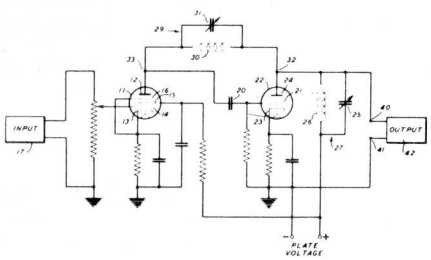
gain control source and the control electrode of said muting tube effecting upon application thereto of a control voltage having a magnitude and polarity representative of signals of less than a predetermined amplitude space current conduction in said muting tube, and second circuit means coupled to the control electrode of said muting tube effective upon application thereto of a control voltage having a magnitude and polarity representative of signals of greater than said predetermined amplitude the interruption of space current conduction in said muting tube, whereby to render said amplifying tube completely unresponsive to signals of less than said predetermined amplitude and completely responsive to signals of greater than said predetermined amplitude.

2,629,785

FREQUENCY SELECTIVE AMPLIFIER

Howard A. Tooker, Allentown, Pa., assignor to Western Electric Company, Incorporated, New York, N. Y., a corporation of New York

Application March 30, 1951, Serial No. 218,466
6 Claims. (Cl. 179—171)



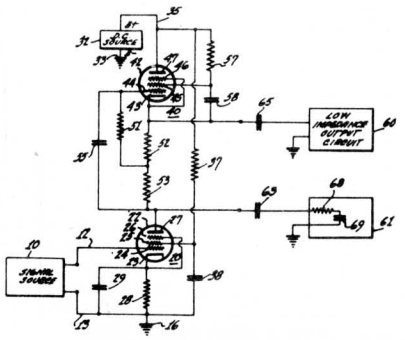
1. In an amplifier system, the combination with a first tube and a second tube, each comprising at least a plate, a grid, and a cathode, and a capacitance coupling between the plate of the first tube and the grid of the second tube, of a tuned circuit comprising an inductance and a capacitance in parallel connected in the plate circuit of the second tube, a second tuned circuit also comprising an inductance and a capacitance in parallel connected between the plates of the two tubes to provide feedback between the output and input of the second tube, and a source of D. C. plate potential for the first tube whose positive side is connected to the plate of the first tube through the coil of the second tuned circuit.

2,631,197

MULTIPLE LOAD AMPLIFICATION SYSTEM

Benjamin S. Vilkomerson, Camden, and Fred B. Stone, Haddonfield, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application March 1, 1949, Serial No. 79,076
3 Claims. (Cl. 179—171)



1. In an amplification system for amplifying alternating electric signals, the combination comprising first and second electron tubes each having a cathode, a control grid and an anode, the anode-cathode impedances of said tubes being connected serially, and a source of operating potential connected across said serially connected tubes, a cathode biasing impedance element and a degenerative impedance element of higher impedance than said cathode biasing impedance element connected in series between the anode of said first tube and the cathode of said second tube, a relatively high impedance element providing a direct current path connected between the junction of said cathode biasing impedance element and said degenerative impedance element and the control grid of said second tube, said relatively high impedance element being of higher impedance than said degenerative impedance element, a signal input circuit coupled to the control grid of said first tube, a first load circuit connected to the anode of said first tube, and a second load circuit connected to the cathode of said second tube.

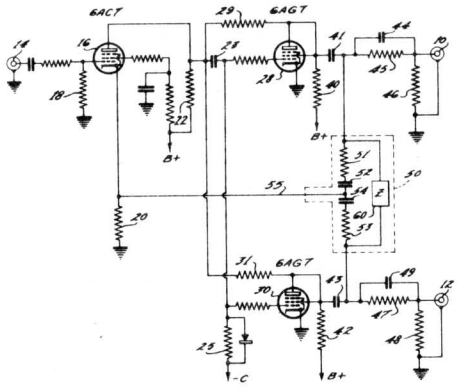
2,631,201

SIGNAL AMPLIFIER

Wendell C. Morrison, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 23, 1952, Serial No. 273,096
5 Claims. (Cl. 179—171)

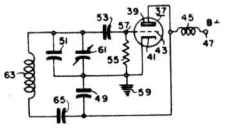
1. A distribution amplifier circuit for providing two output signals for connection of a pair of utilization circuits, said amplifier circuit providing a substantially constant signal level at one utilization circuit with changes in impedance of the other utilization circuit and comprising in



combination, a source of input signals comprising an input amplifier stage, means for simultaneously applying signal energy from said stage to two separate output amplifier circuits, separate output coupling impedance means connected respectively in said separate amplifier circuits with terminals connected thereto for selectively coupling a pair of utilization circuits, means providing signal energy feedback from the output coupling impedances of both said separate amplifier circuits to a suitable connection in said input amplifier stage, and a compensation impedance network connected between both said output coupling impedances having such characteristics that changes of impedance in either of said utilization circuits provides constant signal amplitude at the other utilization circuit.

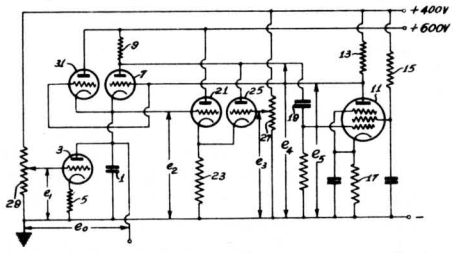
III-B. Oscillators

2,626,354
OSCILLATOR CIRCUIT
Robert C. Cheek, Irwin, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application June 23, 1949, Serial No. 100,808
5 Claims. (Cl. 250—36)



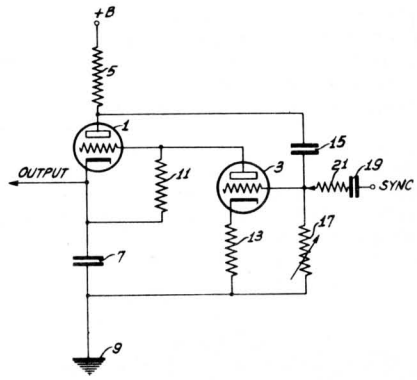
1. An oscillator comprising an electric discharge device having at least an anode, a cathode, and a grid, terminals for connection to a source of anode potential, an inductance connected between said anode and grid, a capacitance connected in shunt with said anode and cathode, and a plurality of paralleled capacitances, at least one of which is variable, connected between said grid and cathode.

2,627,031
RELAXATION OSCILLATOR
James R. Moore, Washington, D. C., assignor to Radio Corporation of America, a corporation of Delaware
Application November 27, 1946, Serial No. 712,553
6 Claims. (Cl. 250—36)



3. A self-oscillatory relaxation oscillator including a capacitor and means for comparatively slowly discharging said capacitor, means comprising a charging circuit for charging said capacitor, means associated with said charging circuit for providing a predetermined lower limit voltage therefor, means responsive to the voltage across said capacitor to initiate comparatively rapid charging of said capacitor through said charging circuit when said capacitor voltage decreases to said predetermined lower limit voltage, means associated with said charging circuit for providing a predetermined upper limit voltage, and means responsive to the voltage across said capacitor to stop said charging when said capacitor voltage reaches said predetermined upper limit voltage and to initiate said discharging of said capacitor.

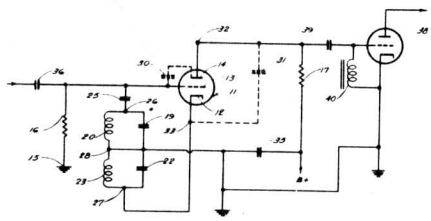
2,627,576
SAW-TOOTH WAVE GENERATOR
Walter J. Howarth, Trenton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 1, 1949, Serial No. 73,972
1 Claim. (Cl. 250—36)



A saw-tooth wave generator comprising in combination, first and second electron discharge devices, each of said devices having a cathode,

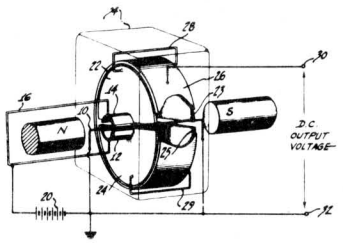
an anode and at least one control electrode, an output condenser, said condenser being connected between the cathode of said first discharge device and a point of fixed reference potential, a line resistor, a terminal adapted to be energized from a source of operating potential, said resistor being connected between said terminal and the anode of said first discharge device, a fixed grid resistor, said grid resistor having a relatively low impedance whereby saw-tooth waves are assured and being connected between the control electrode and cathode of said first discharge device, a direct current connection between the grid of said first discharge device and the anode of said second discharge device, a cathode resistor, said cathode resistor having a relatively low impedance and being connected between the cathode of said second discharge device and said point of fixed reference potential, a variable grid resistor, said variable resistor having a relatively high impedance and being connected between the control electrode of said second discharge device and said point of fixed reference potential, a coupling condenser, said coupling condenser being connected between the control electrode of said second discharge device and the anode of said first discharge device, an input resistor, said input resistor having a relatively high impedance, an input condenser, said input condenser being adapted to be energized from a source of synchronizing signals, said input resistor being connected between said input condenser and the control electrode of said second discharge device and means for connecting an output circuit across said output condenser.

2,628,314
OSCILLATOR
Emmery J. H. Bussard, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application May 20, 1950, Serial No. 163,297
5 Claims. (Cl. 250—36)



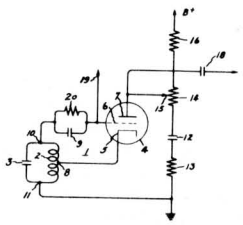
1. In an oscillation generator, the combination of an electron tube including at least an anode, a control electrode and a cathode, a common terminal, means for radio-frequency-connecting said anode to said terminal, a series combination of a capacitor and an inductively reactive parallel combination of inductance and capacitance between said terminal and said control electrode, and a capacitively reactive parallel combination of inductance and capacitance between said terminal and said cathode.

2,630,549
HIGH-VOLTAGE GENERATOR
George C. Sziklai, Princeton, N. J., and Alfred C. Schroeder, Feasterville, Pa., assignors to Radio Corporation of America, a corporation of Delaware
Application August 31, 1948, Serial No. 46,946
6 Claims. (Cl. 315—39)



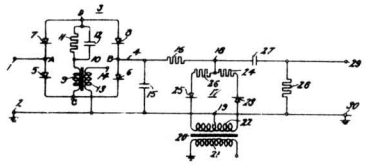
1. A high, unidirectional voltage generator comprising a magnetron oscillator including a plurality of oscillatory anodes and means for establishing a magnetic field for said oscillator, an electron accelerator including a cathode, a plurality of accelerating anodes, and a collecting electrode, said accelerator being disposed in said magnetic field, and means coupling the output of said oscillator to said accelerating anodes comprising connections between selected ones of said oscillatory anodes and selected ones of said accelerating anodes.

2,631,240
SWEEP VOLTAGE GENERATOR
Wolf J. Gruen, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application March 28, 1951, Serial No. 218,025
4 Claims. (Cl. 250—36)



1. A trapezoidal sweep voltage generator comprising a source of unidirectional operating potential having positive and negative terminals, a sweep circuit connected from said positive terminal to said negative terminal and including a resistor and a sweep condenser in the order named, said resistor having an adjustable tap thereon, means for periodically discharging said condenser comprising an oscillator including an electron discharge device having an anode, control electrode and cathode, a tuned frequency-control circuit connected between said control electrode and said negative terminal and including a self-biasing network, a connection from said cathode to an intermediate point on said frequency-control circuit, and means for applying operating voltage to said oscillator comprising a connection from said adjustable tap to said anode, said self-biasing network being adjusted for class C operation of said oscillator, said adjustable tap providing a peaking control for adjusting the voltage waveform developed across said sweep circuit.

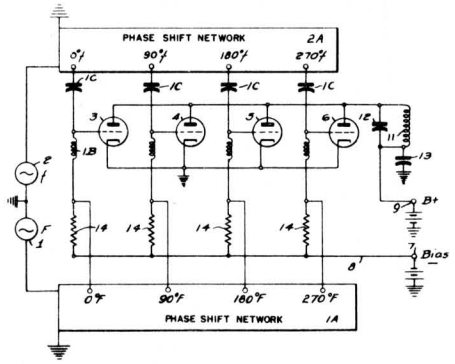
2,625,662
SIGNAL DISCRIMINATOR
Frank A. Gaynor and Charles G. Yates, Jr., Schenectady, N. Y., assignors to General Electric Company, a corporation of New York
Application December 30, 1950, Serial No. 203,684
3 Claims. (Cl. 307—107)



3. A circuit for discriminating against quadrature signal voltages comprising the series combination of a capacitor with the source of total input signal voltage, said combination being connected across one diagonal of a rectifier bridge which has connected across its other diagonal the series combination of an RC network and a source of alternating reference voltage, and means connected to the output of said capacitor for converting its direct voltage to an alternating voltage which is in phase with said reference voltage, said RC network having a time constant which allow the rectifier bridge to conduct for a limited time only during the peak of said alternating reference voltage.

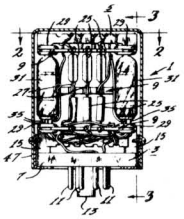
2,626,357
MEANS FOR COMBINING FREQUENCIES
Cyril E. McClellan, Catonsville, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application September 19, 1947, Serial No. 775,122
14 Claims. (Cl. 250—36)

1. In combination with two alternating-current voltage sources of different frequency, each provided with means for deriving a first voltage and also a second voltage which is 90 degrees out of phase with said first voltage, means for impressing on the current path of a first electrical discharge tube a control effect which is proportional in instantaneous value to the sum of the first voltages of said two sources, means for impressing on the current path of a second elec-



trical discharge tube a control effect which is proportional in instantaneous value to the sum of the second voltages of said two voltage sources, and means for impressing on a load circuit a voltage which is proportional in instantaneous value to the sum of the outputs of said first and second electrical discharge tubes.

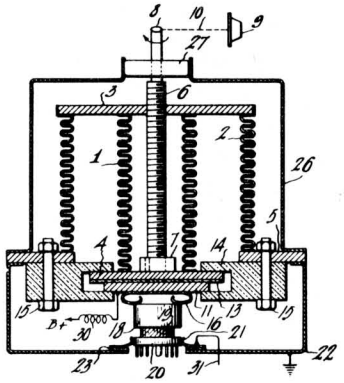
2,628,270
ELECTRICAL PLUG-IN ASSEMBLY
Robert N. Himmel, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 29, 1950, Serial No. 158,973
6 Claims. (Cl. 175—298)



1. A structure for supporting electrical components comprising a plurality of flat frame members, means for mounting certain ones of said frame members in spaced, parallel relation to each other, said certain frame members being formed with openings and with channels communicating with said openings for slidably receiving the remainder of said frame members, said channels being aligned and arranged to support said remainder frame members in transverse relation to said certain frame members.

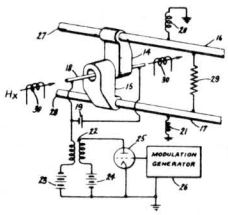
2,629,013
TUNED CIRCUIT
Thomas M. Gluyas, Jr., Collingswood, and Frederick Henry Schneider, Westville, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application May 12, 1949, Serial No. 92,754
6 Claims. (Cl. 178—44)

1. A variable inductor comprising a section of coaxial transmission line adapted to carry high



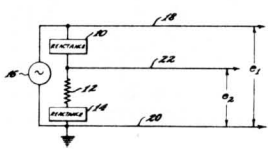
frequency currents, said line having inner and outer conductors in the form of axially substantially coextensive electrically conducting bellows, rigid metallic means bridging said bellows at one end of said section of line, a pair of separated inner and outer metallic plates arranged transversely to said conductors and respectively joined to the bellows at the other end of said section of line, a rotatable adjusting screw axially positioned within the inner conductor and threadedly engaging said rigid means, one end of said screw being positioned in a bearing secured to the inner one of said pair of plates, the other end of said screw constituting a shaft, a bearing for said shaft, and a yoke supporting said last bearing and mounted outside of said coaxial line and on the outer one of said pair of plates.

2,629,050
VARIABLE ELECTRONIC CAPACITANCE DEVICE
Philip H. Peters, Jr., Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application July 22, 1950, Serial No. 175,462
3 Claims. (Cl. 250—27)



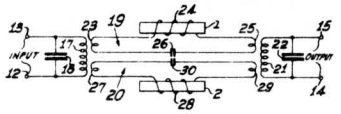
1. A variable electronic capacitance device adapted to be utilized as a capacitance element in an electrical circuit comprising a cylindrically shaped cathode, a pair of cylindrical anodes surrounding said cathode coaxial therewith and spaced therefrom, said anodes being spaced from each other along the axis of said cathode, means establishing a magnetic field in the space between said anodes and said cathode parallel to the axis of said cathode, means establishing a direct current potential difference between said anodes and said cathode whereby an electron cloud of substantially cylindrical shape is created between said cathode and said anodes, and means for varying the potential between said cathode and said anodes to vary the diameter of said electron cloud and the capacitance between said anodes.

2,630,558
IMPROVEMENT IN BALANCED PHASE SPLITTING NETWORK
Alvan Donald Arsem, Oaklyn, N. J., John Randolph Ford, Narberth, Pa., and Nathaniel I. Korman, Merchantville, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application April 29, 1948, Serial No. 23,938
5 Claims. (Cl. 321—58)



1. A balanced phase-splitting network comprising a source of sinusoidal voltage, an input circuit having a voltage reference point established thereon, means for energizing said input circuit from said source, means for obtaining from said input circuit a first output voltage between points equipotentially distant from said reference point, a phase-splitting circuit connected between said equipotential points on said input circuit and including (1) first and second reactances of equal magnitude having similar voltage-current phasing characteristics, (2) a third reactance having a voltage-current phasing characteristic opposite to that of said first and second reactances and (3) a resistor, a connection from one terminal of said first reactance to one of said equipotential points, a connection from one terminal of said second reactance to the other of said equipotential points, connections from the other terminals of said first and second reactances to said third reactance and said resistor, and output connections from the said other terminals of said first and second reactances.

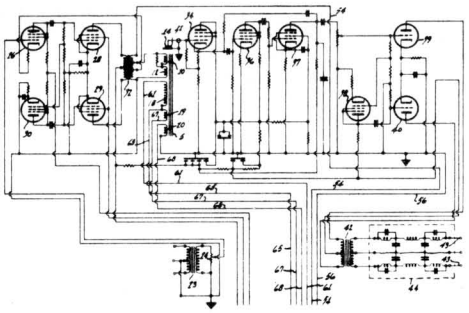
2,631,193
ELECTROMECHANICAL FILTER
Walter van B. Roberts, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 15, 1949, Serial No. 76,586
17 Claims. (Cl. 178—44)



1. An electromechanical band pass filter, comprising a pair of resonant magnetostrictive elements mounted for mechanical vibration and having different mechanical resonant frequencies, a common source of alternating current coupled to said elements to produce vibratory motion thereof at the frequency of said alternating current, separate inductive means coupled to each of said elements to convert the vibratory motion thereof into alternating voltages, the mechanical resonant frequencies of said elements being so chosen that the two alternating voltages developed in said inductive means are substantially 90° apart in phase at a vibratory frequency which is the geometric mean of the two resonant frequencies, whereby the width of the frequency band passed by said filter is equal to the operating frequency for which the filter is designed divided by the mechanical Q of the elements, and means coupling the two inductive means differentially to a common output circuit.

2,631,202
DYNASTAT VOLUME CONTROL
J. Guy Woodward, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 30, 1947, Serial No. 794,478
11 Claims. (Cl. 179—171)

3. An electrical compressor system for audio signals comprising an amplifier for said signals, a transducer connected to the output of said amplifier, said transducer translating electrical energy into mechanical motion and said me-



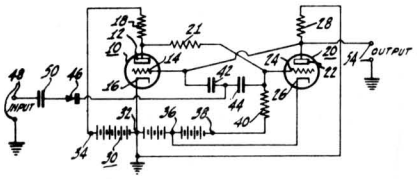
chanical motion into electrical energy, means for deriving a direct current having a predetermined relationship to the average amplitude of said signals at the output of said amplifier, means for varying the translation of said signals into mechanical motion in accordance with the amplitude of said signals and the magnitude of said derived direct current, and means for utilizing said derived direct current for controlling the rate of varying the translation of said signals into mechanical motion.

2,631,231

ELECTRONIC LOCKING CIRCUIT

William A. Miller, Port Jefferson, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

Application May 25, 1950, Serial No. 164,078
5 Claims. (Cl. 250—27)



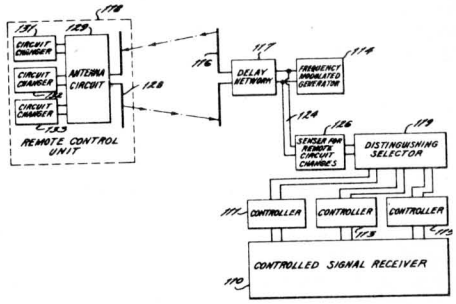
1. An electronic locking circuit comprising a first and a second electron discharge tube each having an anode, cathode and grid, the grid of said first tube being directly connected to the anode of said second tube, the grid of said second tube being coupled to the anode of said first tube, a first load impedance connected at one end to said first tube anode, a second load impedance connected at one end to said second tube anode, a source of operating potential, a point of reference potential, said first tube cathode being connected to said point of reference potential, means to apply a potential which is positive with respect to said point of refrence potential to the other end of said first load impedance, means to apply a potential to the cathode of said second tube which is negative with respect to said reference potential point, a grid leak resistor having one end connected to said second tube grid, means to apply a potential to said grid leak resistor which is more negative than said negative potential applied to said second tube cathode, means to apply a potential to the other end of said second load impedance and means to vary as desired the value of said last named potential from values above to values below said reference potential point.

2,631,280

REMOTE-CONTROL SYSTEM FOR RADIO RECEIVERS AND THE LIKE

Robert L. Harvey, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application August 31, 1949, Serial No. 113,305
1 Claim. (Cl. 343—228)



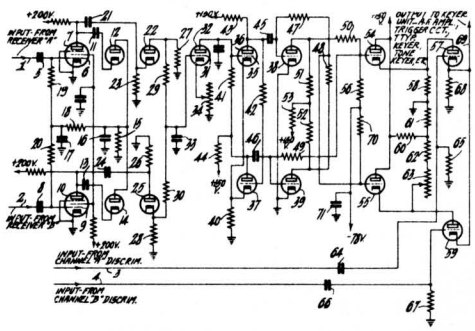
In a remote control system the combination of a receiver to be controlled; a source of carrier oscillations, a delay network and a transmitting antenna connected in series in the order named; a powerless remote control unit including a reflective antenna, a plurality of individual antenna impedance changing circuits connected to said reflective antenna, and means for actuating each of said circuits so as to change the impedance of said reflective antenna in accordance with a predetermined sequence whereby the energy reflected from said reflective antenna varies in accordance with said sequence; antenna means adjacent said receiver for receiving said reflected waves; a sensing unit connected in series with said delay network and said antenna means to detect remote circuit changes, a selector unit energized by the output from said sensing unit; said selector unit having a plurality of output circuits; control units connected to said receiver and adapted to vary the tuning and volume of said receiver; each of said control units being individually connected to one of said output circuits whereby the operation of said receiver is controlled in accordance with the received sequence.

2,632,104

GATING CIRCUIT

Louis L. Lakatos, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application February 19, 1952, Serial No. 272,396
17 Claims. (Cl. 250—27)

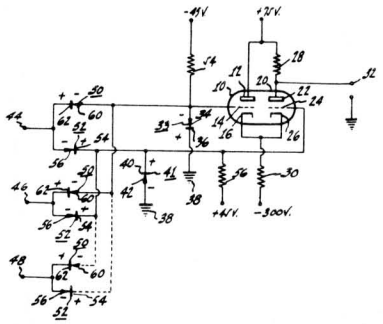


1. In a gating circuit, a pair of electronic valves each having at least anode, cathode and grid electrodes, means for applying a pair of signals to be gated each to a respective grid electrode,

a common cathode impedance coupled to both cathode electrodes, means for utilizing the voltage developed across said common impedance, and separate but interrelated controllable means for alternatively applying energizing potentials to said anode electrodes, thereby to cause said valves to alternatively conduct, each valve conducting in response to the application of an energizing potential to its own anode electrode.

2,632,845
COINCIDENCE INDICATOR
Edwin A. Goldberg, Princeton Junction, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 22, 1950, Serial No. 202,349
4 Claims. (Cl. 250—27)

1. An electronic coincidence system comprising a first and a second electron discharge tube each having an anode, cathode, and grid electrode, a cathode bias resistor to which the cathodes of said first and second tubes are connected, an anode load resistor connected to the anode of said second tube, a plurality of signal input terminals, means to pass signals of only one po-

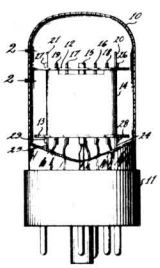


larity connected between said signal input terminals and said first tube grid, means to pass signals of only the opposite polarity connected between said signal input terminals and said second tube grid and means to derive an output from said second tube anode when the signals existing simultaneously on said first and second tube grids have the same amplitude.

SECTION IV. TUBES

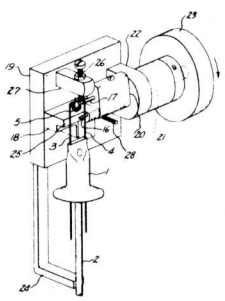
IV-A. Receiving

2,625,665
ELECTRON TUBE MOUNT AND METHOD OF ASSEMBLY
William K. Batzle, Bloomfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application March 31, 1950, Serial No. 153,282
12 Claims. (Cl. 313—261)



1. An electron tube mount including an insulating spacer plate having a relatively long slot therein and an electrode having an end portion extending through said slot for fixing said electrode with respect to said plate, said end portion having an embossment in a relatively small transverse part thereof for engaging a face of said plate remote from said electrode and intermediate the ends of said slot, whereby said electrode is fixed to said plate.

2,626,637
METHOD OF MANUFACTURING CATHODE MOUNTS
Jack M. Coughlin, Cleveland, Ohio, assignor to General Electric Company, a corporation of New York
Application April 1, 1949, Serial No. 84,788
3 Claims. (Cl. 140—71.6)

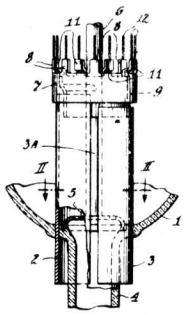


1. The method of manufacturing a cathode mount which comprises securing a coiled filament at its ends to and laterally between a pair

of substantially parallel lead-in wires extending longitudinally and substantially equal distances from a supporting stem, and then deforming at least one of said lead-in wires to bring said filament at least approximately into longitudinal alignment with said stem by preliminarily bending an end portion of one lead-in wire toward the other lead-in wire and substantially within the plane defined by said lead-in wires, and then bending a portion of said lead-in wire back upon itself in a plane substantially normal to the plane defined by the parallel lead-in wires.

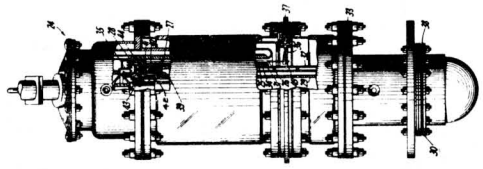
IV-B. Transmitting

2,626,369
ELECTRIC DISCHARGE DEVICE
Hampton J. Dailey, Verona, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application June 29, 1951, Serial No. 234,215
4 Claims. (Cl. 313—272)



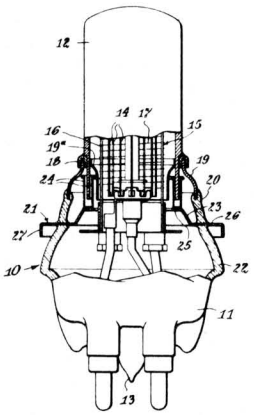
1. In combination with an envelope of an electrical discharge device, a pair of hemi-cylindrical metal lead-ins coaxially positioned and sealed through the wall thereof, a first annular metal cap affixed to one end of said lead-in, a second annular metal cap affixed to the other said lead-in and means to attach filament-ends to said caps.

2,626,370
FILAMENT STRUCTURE FOR ELECTRON DISCHARGE DEVICE
William N. Parker, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application May 26, 1949, Serial No. 95,432
13 Claims. (Cl. 313—273)



2. An electron discharge device, comprising at least two co-acting electrodes, support means for each of said electrodes, at least one of said electrodes being elongated and having mounting heads formed adjacent each of its ends, each of said mounting heads having a knife-edge which extends in a plane intersecting the longitudinal axis of said elongated electrode, the support means associated with said elongated electrode including means axially tensioning said elongated electrode and means having spaced V grooves formed therein adapted to receive said knife-edges, and each of said knife-edges being quick detachably seated in one of said V grooves.

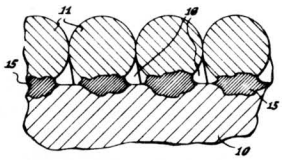
2,628,328
HIGH POWER TUBE BLOCKING CONDENSER
Carl H. Scullin, Florham Park, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application December 22, 1950, Serial No. 202,287
6 Claims. (Cl. 315—58)



1. An electron discharge device comprising an anode and a built-in blocking condenser, said condenser having said anode as one electrical conductor, a condenser plate within said device in close proximity to said anode as the other electrical conductor, and a frusto-conical support plate within said device for mounting said condenser plate, said support plate having a washer-like mounting flange projecting radially inwardly from the top of said support plate and a washer-like sealing flange projecting radially outwardly from the bottom of said plate through the envelopen of said device.

2,629,065
OVERWOUND FILAMENT
Hampton J. Dailey, Verona, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application May 14, 1948, Serial No. 27,122
4 Claims. (Cl. 313—343)

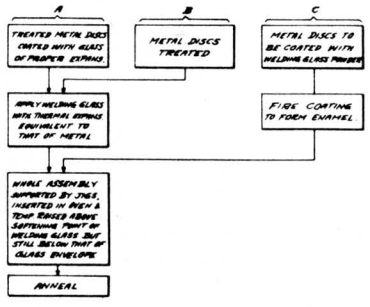
1. A cathode comprising a metallic cylindrical core adapted to be heated by flow of current therethrough, and an overwound coil of wire on said core, said coil being of different chemical constituency from said core and having a continuous-spiral portion of its convolutions in contact with and alloyed directly to said core sub-



stantially throughout the length of said continuous-spiral portion, and said cathode having a greater outside diameter at its middle than at its ends.

2,629,093
MULTISEAL ENVELOPE AND THE METHOD OF MAKING
Joseph A. Pask, Concord, Calif., and Charles M. Slack, Glen Ridge, N. J., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application March 8, 1949, Serial No. 80,196
8 Claims. (Cl. 220—2.3)

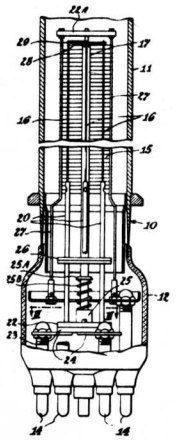
1. The method of making multi-seal envelopes for evacuated electron-discharge devices, comprising treating a plurality of annular metal members for the application of vitreous material, as means for connecting thereto a plurality of hollow-insulative enevlope sections alternating with said annular metal members, applying vitreous material to said annular metal members in the form of at least one annular layer on each side thereof, said layers being smaller in radial dimension than the annular metal members, so as to terminate short of the inner and outer edges of said members, having a softening point considerably lower than that of the envelope sections, but a coefficient of expansion approximately corresponding with that of said metal members, a mean diameter approximately corre-



sponding with, and a radial width exceeding the thickness of, the envelope sections, assembling a plurality of said hollow insulative envelope sections alternating with said annular metal members, the adjacent edges of said envelope sections engaging the annular layers of said lower-softening-point material, supporting said assembly, simultaneously exposing the whole assembly for heating to a temperature, which is the same for all parts thereof, above the point of fusion of said lower softening point vitreous material but still below the softening point of said envelope sections, whereby said lower softening point vitreous materials fuses, allowing the temperature of said assembly to be reduced to cause the vitreous material to simultaneously seal the parts together, and annealing the formed envelope.

5. A multi-seal envelope for evacuated electron-discharge devices comprising a plurality of hollow insulative envelope sections, adjacent ones of which are united by a mating annular metal disk of larger outside diameter, with vitreous material having a softening point considerably lower than that of the envelope sections, but a coefficient of expansion corresponding approximately with that of said metal members, as a thin layer terminating short of the inner and outer edges of said metal members, between each envelope section and the adjacent metal members and bonding said sections and members together.

2,632,129
FILAMENT SUPPORT STRUCTURE FOR ELECTRON DISCHARGE DEVICES
Hampton J. Dailey, Verona, N. J., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 9, 1951, Serial No. 235,756
7 Claims. (Cl. 313—272)



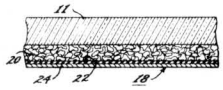
2. An electron-emissive cathode comprising three groups of hairpin filaments having their lower ends rigidly connected in symmetrical spaced relation on the circumference of a circle to a base member, all the hairpin filaments in any one group having their upper ends connected to a filament saddle individual to that group, a support member having a universal pivot support to said base member at a point on the central axis of said circle, pivotal supports for said filament saddles at three points on said support member which are equi-distant from said axis and from each other, and means for electrically insulating said filaments from said support member.

2,625,493

METHOD OF MANUFACTURING A REFLECTIVE FLUORESCENT SCREEN

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

Application April 17, 1947, Serial No. 742,117
4 Claims. (Cl. 117—33.5)



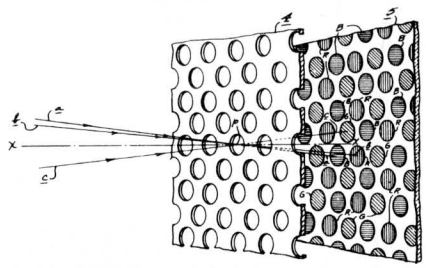
1. The method of producing a reflective fluorescent screen on a surface of a cathode ray bulb, the method comprising the steps of, applying to the bulb surface a phosphor coating, covering the phosphor coating with a volatile liquid pool, floating onto the surface of the liquid pool above said phosphor screen a film of lacquer dissolved in a volatile solvent immiscible in said liquid, partially drying the lacquer film to an extensible consistency by evaporation of its solvent, tilting the bulb portion about a horizontal axis to bring one edge of the phosphor screen in adherence with the extensible film, continuing the tilting of the bulb portion in the same direction to gradually bring the remainder of the phosphor screen to the surface of the liquid pool, flowing the liquid out from between the phosphor screen and the lacquer film to spread the lacquer film from its attached edge over the phosphor surface, and then completely drying the lacquer film to a hard surface.

2,625,734

ART OF MAKING COLOR-KINESCOPES, ETC.

Harold B. Law, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application April 28, 1950, Serial No. 158,901
3 Claims. (Cl. 29—25.13)



1. In the art of manufacturing cathode-ray color tubes of the kind having a center-of-scan and containing a color-screen unit comprising: (*a*) a taut thin-metal electrode having a multiplicity of systematically arranged dot-like apertures therein through which beam-electrons pass along different angularly related paths in their transit from said center-of-scan to (*b*) a screen-plate having a target surface made up of a multiplicity of systematically arranged groups of dot-like electron-sensitive target areas of different color-response characteristics and (*c*) a frame upon which said apertured electrode and said screen-plate are supported in spaced-apart relationship with the different dot-like target areas of each group located at the terminals of respectively different ones of said angularly related electron-paths; the method of making a screen-plate of the kind described and of mounting said screen plate on said frame in the proper location with respect to said apertured electrode to provide an operative color-screen unit irrespective of minor departures from a standard in the tensioning forces employed in securing said apertured electrode tautly on said frame; said method comprising: (1) placing a photographic plate adjacent to said frame in a plane spaced from said tautly mounted apertured electrode, (2) directing radiant energy through the dot-like apertures in said electrode from a point corresponding to a point at the center-of-scan of said cathode-ray tube, (3) taking a photograph on said photographic plate of the dot-like pattern resulting from the passage of said radiant energy through said apertures, (4) removing said photographic plate from its said position, (5) successively applying electron-sensitive materials of each color-response characteristic to said screen-plate in the dot-like pattern disclosed by said photographic plate and in accordance with said systematic group arrangement, and then (6) securing said sensitized screen-plate to said frame in the plane and position formerly occupied by said photographic plate.

2,628,201

ZINC-MAGNESIUM OXIDE LUMINESCENT MATERIALS AND METHODS OF MAKING SAME

Arthur L. J. Smith, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application July 29, 1949, Serial No. 107,616
11 Claims. (Cl. 252—301.6)

1. A luminescent material as prepared by a process comprising preparing a mixture of zinc oxide and magnesium oxide in which the proportion by weight of said magnesium oxide is 1–50 mol per cent, firing the mixture at a temperature of 907° C. to 1300° C. in a reducing atmosphere, and then immediately cooling the material in a non-oxidizing atmosphere.

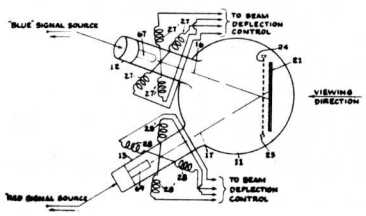
2,630,542

MULTICOLOR TELEVISION

Alfred N. Goldsmith, New York, N. Y., assignor to Radio Corporation of America, New York, N. Y., a corporation of Delaware

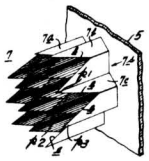
Application July 19, 1947, Serial No. 762,175
33 Claims. (Cl. 313—70)

1. An electron-beam tube comprising, a target consisting, effectively, of a multiplicity of sys-



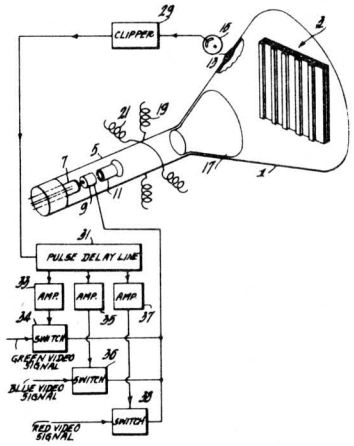
tematically arranged clusters of at least three color areas of different color-response characteristics, said color areas having coordinate dimensions both of which are small relative to the overall dimensions of said target, a battery of electron guns corresponding in number to the number of different color areas in a single one of said clusters, said guns being disposed at the corners of a polygon and tilted toward the center of said target for supplying beam electrons to said target along a plurality of angularly related paths which terminate on respectively different ones of the color areas in each cluster, an apertured electrode mounted adjacent to said target and through the apertures of which electrons travel in their transit to said different color areas, the pattern of distribution of the apertures in said apertured electrode corresponding to that of said clusters of color areas on said target.

2,631,253
ELECTRON-SENSITIVE TARGET FOR COLOR-KINESCOPES, ETC.
Russell R. Law, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 18, 1950, Serial No. 180,109
5 Claims. (Cl. 313—70)



1. An electron-sensitive target of the open-end cellular variety wherein the individual cells of the target comprise a rigid electron-sensitive wall having an edge that slants off from a point at the open end of the cell in the direction of the opposite end of said cell.

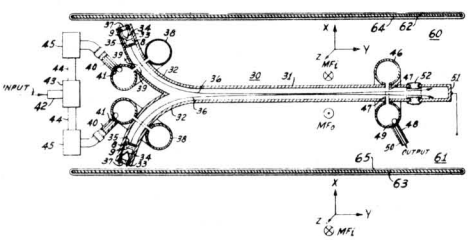
2,633,547
TWO-SIDED ELECTRON-SENSITIVE SCREEN
Harold B. Law, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 30, 1950, Serial No. 171,394
5 Claims. (Cl. 313—92)



1. An electron-sensitive color target comprising a foundation having a multiplicity of groups of phosphor-coated elemental areas on a surface thereof, said elemental areas each being constituted essentially of a phosphor material capable of emitting light of a color individual to that area, an electron-transparent light-reflecting metal layer supported upon said groups of phosphor coated areas, and a plurality of discrete electron-transparent phosphor coatings disposed on said metal layer each in register with a particular one of the elemental color-phosphor areas of each group.

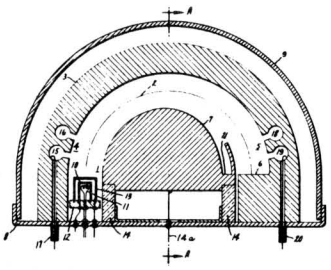
IV-D. Klystrons, Magnetrons, etc.

2,630,547
PLURAL-BEAM GROWING-WAVE TUBE
Wellesley J. Dodds, Cranbury, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 27, 1949, Serial No. 106,986
12 Claims. (Cl. 315—6)



4. A plural-beam growing-wave tube comprising a substantially rectilinear main tubular enclosure, two branch tubular enclosures extending from an input end of the main enclosure to regions in spaced relationship to each other, an electron gun in each of the branch enclosures in one of said regions, an input resonant cavity connected between two portions of each branch enclosure by junctures so formed that the cavity and the branch enclosure comprise parts of the evacuated envelope of the tube, each input cavity being positioned in the branch enclosure between said region thereof where an electron gun is enclosed and the point of juncture thereof with the main enclosure, and an output resonant cavity connected to the main enclosure near to its opposite end by junctures similar to those above recited with reference to the connection of each input cavity into a branch enclosure.

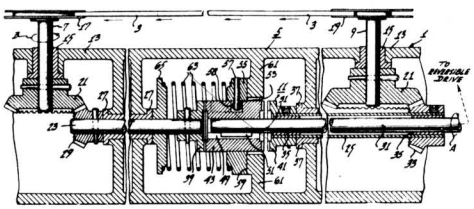
2,632,866
VELOCITY MODULATION ELECTRON DISCHARGE DEVICE
Elmer D. McArthur, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application December 31, 1949, Serial No. 136,297
1 Claim. (Cl. 315—39)



An ultra high frequency discharge device amplifier having an electron gun for producing an electron beam, means positioned along the path of said beam for producing a static magnetic field normal to said path to deflect said electron beam into a curved path corresponding to an approximately circular arc, a first curved conductive member defining the outer boundary of said path, said member having a transverse collecting surface defining the end of said path, a second curved conductive member defining the inner boundary of said path, said second member having a recessed portion near said end of said path to trap electrons of said beam adjacent said second member, terminal means for applying positive potentials with respect to said beam to said first and second members, an input resonator system comprising a pair of spaced cavity resonators incorporated in said first curved member near the beginning of said curved path and communicating therewith, means coupled to one of said resonators of said input resonator system for exciting said input system from an ultra high frequency signal source to produce cooperating fringing electric fields extending into said electron path and having substantial components tangent thereto for varying the beam radius of curvature by modulating its velocity, an output resonator system comprising a pair of spaced cavity resonators incorporated in said first curved member near said end of said path and communicating with said path in order to be excited in unison by the varying proximity of said electron beam according to its radius of curvature, and a concentric transmission line coupled to one of said resonators of said output resonator system.

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

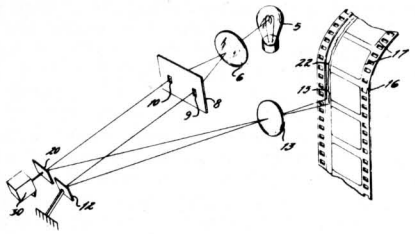
2,624,214
REVERSIBLE DRIVE MECHANISM
Stewart L. Arensberg, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 27, 1950, Serial No. 192,538
2 Claims. (Cl. 74—665)



1. A reversible drive mechanism comprising a support, two shafts journaled in said support and being mounted for independent rotation, two driven members journaled in said support, said driven members being coaxially mounted, one of said driven members comprising a shaft, the other of said driven members comprising a sleeve, means connecting each of said driven members respectively to individual ones of said first mentioned shafts for transmitting a driving force thereto, a drive shaft extending coaxially through said sleeve, said drive shaft being mounted for independent rotation with respect to said sleeve and adapted to be reversibly driven, means operative in response to a change in direction of rotation of said drive shaft for coupling said drive shaft to only one of said driven members upon rotation of said drive shaft in one direction and for coupling said drive shaft to only the other of said driven members upon rotation of said drive shaft in the opposite direction, and spring biased friction means operatively connected between said last mentioned means and said support for effecting said directionally responsive coupling.

2,626,320
SOUND RECORDING AND REPRODUCTION
Gustav Bergson, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application July 27, 1949, Serial No. 107,034
7 Claims. (Cl. 179—100.3)

1. A sound recording system comprising means for producing a plurality of light beams, a film having a light sensitive emulsion thereon, and means for projecting said beams to said emulsion, said last mentioned means including means for varying the separation of said beams on said emulsion in accordance with the amplitude and frequency of a signal being recorded, and said first mentioned means including a mask with a



V-shaped aperture therein and a mask with a straight slit therein on which light from said aperture is projected to provide on a print two transparent traces narrow with respect to the opaque portion of said emulsion.

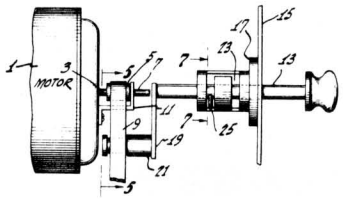
2,627,186

BELT-DRIVE POWER TRANSFER SYSTEM

Earl E. Masterson, Palmyra, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application June 30, 1950, Serial No. 171,491

6 Claims. (Cl. 74—242.3)



1. A belt shifting mechanism for a belt adapted to cooperate with a pulley, said mechanism comprising, in combination, a shaft mounted for axial and rotational movement, a crank arm fastened to one end of said shaft, and a belt lifting idler secured to said crank arm, rotational movement of said shaft causing said idler to lift the belt from the pulley to a position where an axial movement of said shaft shifts the belt from the plane of said pulley.

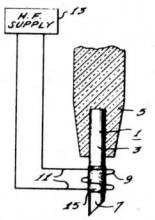
2,627,416

INDUCTION HEATING OF RECORDING STYLI

Henry F. Schoemehl, Seelyville, and Harry D. Ward, Indianapolis, Ind., assignors to Radio Corporation of America, a corporation of Delaware

Application March 31, 1950, Serial No. 153,248

11 Claims. (Cl. 274—38)



1. In sound recording apparatus, the combination of a recording stylus at least a portion of the length of which comprises electrically conductive material and electrically conductive heating means inductively coupled with said stylus conductive portion, said stylus being made of non-conductive material and having a groove cutting edge at one end thereof, said stylus conducting portion comprising a metallic band disposed in close fitting relation about said stylus and in closely spaced relation to said cutting edge.

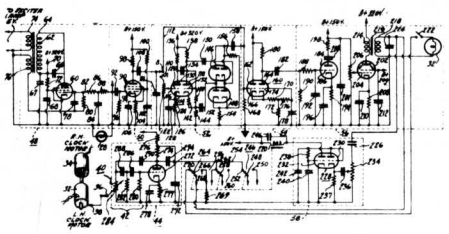
2,627,596

DRIVING APPARATUS

Dallas R. Andrews, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 31, 1950, Serial No. 165,274

6 Claims. (Cl. 318—318)



1. Apparatus for controlling the velocity of a recording medium carrying spaced indicia, such that said indicia pass a given point at a desired constant frequency, comprising means responsive to the movement of said indicia for generating a control signal having a frequency proportional to the rate of passage of said indicia, a standard signal source having a frequency related to said desired frequency, means for continuously detecting any difference between the frequency of said signal and of said standard source, said detecting means comprising a first motor having a housing and a shaft and a second motor having a housing and a shaft, the shafts of said first and second motors being directly coupled together for simultaneous rotation, the housing of said first motor being fixedly mounted, the housing of said second motor being rotatably mounted, said first motor being energized from said standard source, said second motor being energized from said control signal whereby differences in the frequency of said standard source and said control signal cause a corresponding rotary movement of the housing of said second motor, a variable frequency oscillator having a normal output frequency bearing a predetermined relationship to that of said standard source, means responsive to the movement of said rotatable housing for varying the frequency of said oscillator, and means responsive to the output frequency of said oscillator for driving said recording medium.

2,628,039

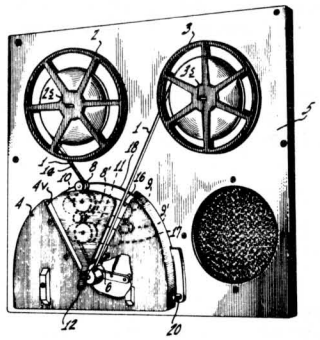
TAPE-REELING SYSTEM

William Walter Watts, Wynnewood, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application April 21, 1949, Serial No. 88,745

5 Claims. (Cl. 242—76)

1. In a tape-reeling system, a housing containing a plurality of guide members, positioned to define a path along which the tape is to run, said housing containing an opening substantially



in register with said path and through which a length of said tape may be entered edgewise into operative relation with said guide members, and a projection on said housing extending across a portion of said opening, said projection having a free-end under which a portion of said tape may be looped and an inclined inner surface along which the looped portion of said tape may be drawn edgewise through said opening into engagement with said guide members upon subjecting said looped tape to a reeling force.

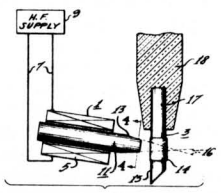
2,628,104

INDUCTION HEATING OF RECORDING STYLI

Lawrence R. Shardlow, North Arlington, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 31, 1950, Serial No. 153,232

4 Claims. (Cl. 274—38)



1. Apparatus for recording sound vibrations upon a record with a heated stylus comprising, in combination, an electrically non-conducting stylus, an electrically conducting material fixed to said stylus intermediate the ends thereof, and a coil having a magnetically permeable core axially disposed therethrough, said coil and core being mounted with one end of said core disposed in closely spaced relation to said conducting material.

2,628,284

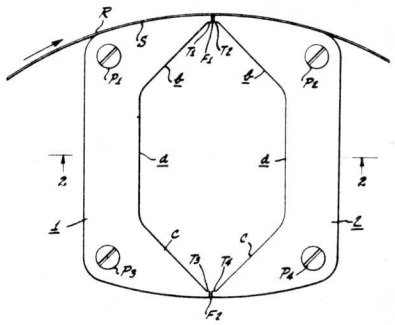
MAGNETIC TRANSDUCER

Albert W. Friend, Lawrenceville, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application October 31, 1949, Serial No. 124,602

3 Claims. (Cl. 179—100.2)

1. A transducer for a magnetic record, said transducer comprising a magnetic structure having an outer surface-portion upon which said record moves during recording and reproducing intervals, said magnetic structure having a pair of polar extremities defining the boundaries of a non-magnetic gap in said surface adjacent to the path of said record, said polar extremities being



tapered inwardly in the direction of said gap and terminating adjacent to said gap in projections of substantially uniform cross-section, said magnetic structure being of stacked laminated construction each lamina of which being of duplicate size and shape.

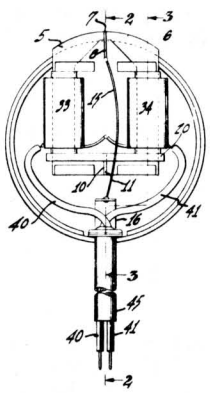
2,628,286

MAGNETIC HEAD CONSTRUCTION

Michael Rettinger, Encino, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application March 24, 1950, Serial No. 151,567

9 Claims. (Cl. 179—100.2)



1. In combination, two groups of stacked laminations to form a closed magnetic path, each group having one end thereof L-shaped and the other end thereof tapered outwardly at approximately forty-five degrees with pole tips having a constant cross-sectional area over abutting portions thereof, a non-magnetic spacer between the pole tips and a non-magnetic spacer between the L-shaped ends of said groups, windings positioned on the intermediate portions of said groups, a housing surrounding said groups and said windings, the pole tips extending through an opening in said housing, and plastic material intermediate said laminations, said windings, and said housing.

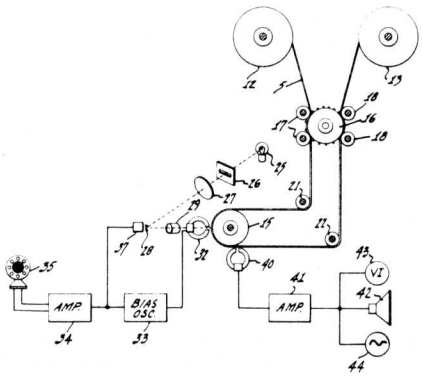
2,628,288

COMBINATION SOUND RECORDING AND RECORD

Dorothy L. Blaney, Los Angeles, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application May 19, 1949, Serial No. 94,065

12 Claims. (Cl. 179—100.3)



1. A sound recording system comprising means for simultaneously recording a photographic record and a magnetic record on the same film of the same sound waves, and means for simultaneously reproducing said magnetic record for monitoring said photographic record.

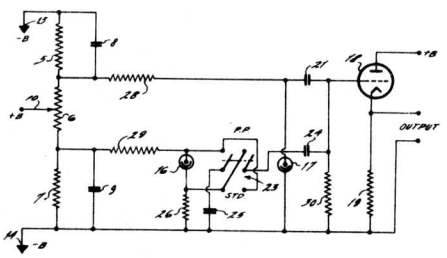
2,628,316

PHOTOELECTRIC CELL COUPLING CIRCUIT

John J. De Muth, Burbank, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application November 25, 1949, Serial No. 129,376

5 Claims. (Cl. 250—209)



1. A photoelectric cell coupling circuit comprising a pair of photoelectric cells, an amplifier, means for adjusting the direct current potentials on the anodes of said cells, a switching circuit, a condenser, and means for coupling the anode of one of said cells to said amplifier, one position of said switching circuit including coupling means for coupling the anode of the other of said cells to said amplifier, and placing said condenser directly between the cathode of said other cell and ground, and another position of said switching circuit connecting the cathode of said other cell to said amplifier and placing said condenser directly between the anode of said other cell and ground.

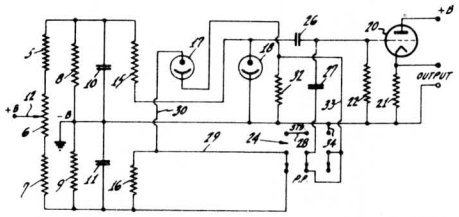
2,628,317

PHOTOELECTRIC CELL COUPLING CIRCUIT

Kurt Singer, North Hollywood, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application November 25, 1949, Serial No. 129,480

5 Claims. (Cl. 250—209)



1. A photoelectric cell coupling circuit comprising a pair of photoelectric cells, an amplifier, means for adjusting the direct current potential on the anodes of said cells, a switching circuit, a pair of coupling elements connected to said amplifier, and switching means, one position of said switching means directly connecting through said switching circuit the anode of one of said cells to one of said coupling elements, the anode of the other of said cells being directly connected to said other coupling element, said switching means simultaneously connecting the cathodes of said cells together and to ground, and another position of said switching means disconnecting said anode of said one cell from said one coupling element and connecting the cathode of said one cell directly to said one coupling element.

2,633,427

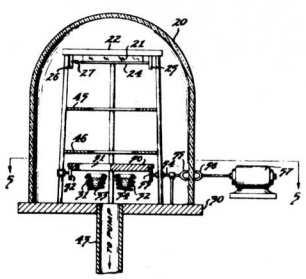
METHOD FOR PRODUCING A LIGHT SLIT

Glenn L. Dimmick and Mary E. Widdop, Haddon Heights, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application April 22, 1947, Serial No. 743,222

9 Claims. (Cl. 117—38)

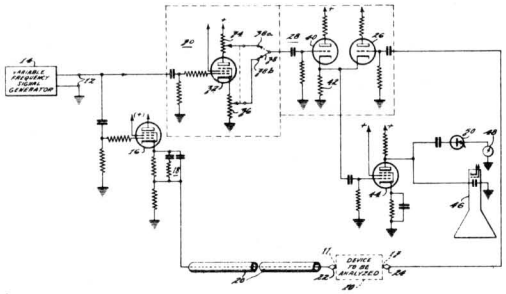
1. The method of producing a light transmitting aperture comprising evaporating a metal of low electrical resistance and an insulating material of high electrical resistance in a vacuum, directing said evaporated materials to the surface of a transparent medium, covering said medium with a narrow uniformly parallel sided shield, depositing said evaporated material over said medium and said shield, said depositing being



extended over two predetermined time periods and the evaporation of said materials being simultaneous, and removing said shield to form said aperture.

SECTION VI. MEASURING AND TESTING APPARATUS

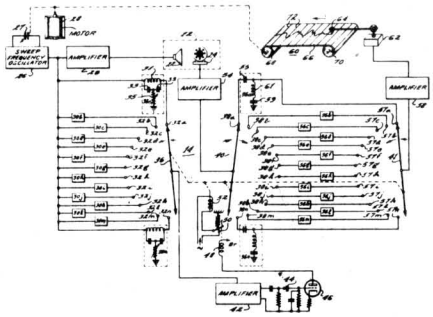
2,628,266
ANALYSIS OF SIGNAL TRANSFER DEVICES
Alfred C. Schroeder, Feasterville, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application January 22, 1949, Serial No. 72,248
9 Claims. (Cl. 175—183)



5. Apparatus for determining the phase delay characteristic and the amplitude response characteristic of a signal transfer device having a predetermined frequency pass-band and having input and output points, said apparatus comprising a signal input portion adapted to be connected to a source of variable frequency signals, signal delay means having a substantially constant phase delay characteristic as to signals of any frequency within said frequency pass-band, said delay means being coupled to said input portion of said apparatus and being adapted to be coupled to said input point of said device, a phase reversing network having an input section coupled to said input portion of said apparatus and having two output sections adapted to provide opposed-phase signals, means for varying the magnitude of said opposed-phase signals at said output sections of said reversing network, a signal mixing network having two input sections and an output section, switching means for selectively coupling one of said input sections of said mixing network to either of said output sections of said reversing network, the other of said input sections of said mixing network being adapted to be coupled to said output point of said device, and measuring means coupled to said mixing network for determining the amplitude of signals at said output section of said mixing network.

2,629,000
DISTORTION ANALYZING APPARATUS
Harry F. Olson, Princeton, N. J., and Donald F. Pennie, Minneapolis, Minn., assignors to Radio Corporation of America, a corporation of Delaware
Application May 26, 1950, Serial No. 164,442
8 Claims. (Cl. 175—183)

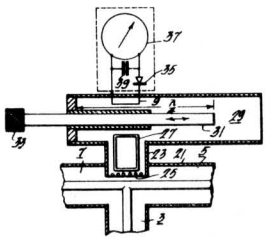
1. In apparatus for determining the harmonic distortion introduced by a signal transfer system into a varying frequency signal passed through said system, in combination, a plurality of filter elements adapted to pass only signals of greater than predetermined minimum frequencies, the minimum frequency being different for each said filter, a signal responsive indicator, a switch to connect said system to said indicator through a selected one of said filters, and frequency sensi-



tive switch control means connected to actuate said switch in response to variations in the frequency of said varying frequency signals to connect between said system and said indicator a preselected one of said filters at each of a plurality of preselected frequencies of said signal.

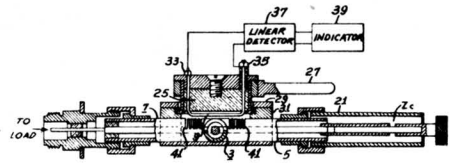
2,630,473
TRANSMISSION LINE MEASURING APPARATUS
Oakley M. Woodward, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 25, 1945, Serial No. 590,271
5 Claims. (Cl. 175—183)

3. An energy measuring device for a coaxial transmission line including a plurality of sections of coaxial line having a common junction, means for connecting said transmission line to one of said line sections, means for connecting a load to another one of said line sections, means for connecting an impedance element substantially matched to the surge impedance of said transmission line to the remaining one of said line sections, a coupling loop inductively coupled in predetermined angular relation to said line sections at said junction and capacitively shielded from said load line and said impedance line sections with respect to said junction by a metallic shield having a plurality of parallel slots and coupled to said load and impedance element



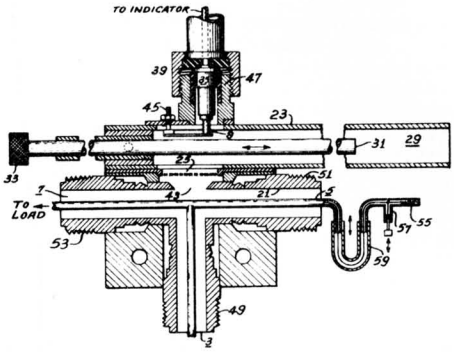
line sections by means including said slots, said shield being interposed between said junction and said loop and symmetrically positioned with respect to a plane of symmetry between said impedance element and load line sections, and means for connecting energy detecting and measuring means responsive to currents induced in said coupling loop for indicating the matching of said load impedance to said transmission line surge impedance.

2,630,474
TRANSMISSION LINE MEASURING SYSTEM
George H. Brown, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 6, 1947, Serial No. 766,735
15 Claims. (Cl. 175—183)



4. A device for determining the phase angle of currents delivered to a load from a coaxial transmission line and the impedance of said load including a plurality of sections of coaxial line forming substantially a T junction, means for connecting said transmission line to one of said line sections, means for connecting said load to another one of said line sections, a reactance element substantially equal in magnitude to the surge impedance of said transmission line, means for connecting said reactance element to the remaining one of said line sections, a rotatable coupling loop selectively inductively coupled to and capacitively shielded from said load line and element line sections at said junction, means for connecting energy detecting means responsive to currents induced in said coupling loop, means for orienting said loop selectively to induce currents therein proportional respectively to the vector sum and to the vector difference of currents in said line sections connected to said load and said reactance element, means for detecting and indicating said induced currents whereby the relative magnitudes of said detected currents are characteristic of the impedance of said load and the magnitude and sign of the phase angle of the currents in said load.

2,630,475
MEANS FOR MEASURING IMPEDANCE AT RADIO FREQUENCIES
Oakley M. Woodward, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 29, 1947, Serial No. 771,241
9 Claims. (Cl. 175—183)

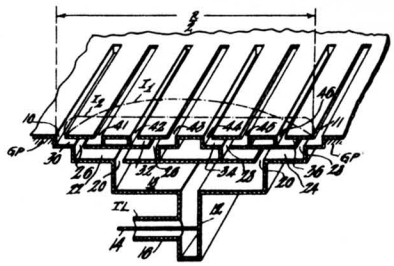


8. A device for determining the impedance of a load coupled to a coaxial transmission line including a plurality of sections of coaxial line having a common junction, means for connecting said transmission line to one of said line sections, means for connecting a load to another one of said line sections, an impedance element comprising a resistor and an adjustable coaxial stub line terminating the remaining one of said line sections, means for adjusting said stub line to provide standing waves on said element line section equal in magnitude to standing waves on said load line section, means comprising an adjustable "trombone" coaxial line section serially interposed in said element line section for shifting said standing waves along said element line section to oppose said standing waves on said load line section, a coupling loop coupled to said junction, energy detecting means responsive to currents induced in said coupling loop for indicating a balanced standing wave condition on said load line and impedance element line sections, and calibrating means for said impedance element adjusting means and said wave shifting means for determining said load impedance.

SECTION VII. ANTENNAS

2,628,311
MULTIPLE SLOT ANTENNA
Nils E. Lindenblad, Port Jefferson, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application November 4, 1948, Serial No. 58,246
15 Claims. (Cl. 250—33.63)

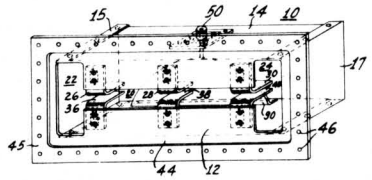
2. An antenna system comprising a conductive ground plane sheet having a plurality of radiation slots therein, waveguide members intercoupling pairs of slots of said plurality of radiation slots, waveguide elements intercoupling pairs of said waveguide members, a waveguide chamber coupled to said waveguide elements, and means to produce a radio frequency wave in said waveguide chamber, the path lengths of said wave-



guide elements and said waveguide members being substantially equal, thereby to convey the energy of said wave in the same phase to said plurality of radiation slots.

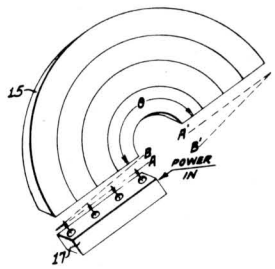
2,629,051
ANTENNA
Nils E. Lindenblad, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Original application August 25, 1945, Serial No. 612,685, now Patent No. 2,573,460, dated October 30, 1951. Divided and this application August 18, 1950, Serial No. 180,108
9 Claims. (Cl. 250—33.63)

1. An antenna structure including a conductive walled box having an elongated slot in one wall thereof coupling the interior of said box to surrounding space, said box and said slot having dimensions at which said antenna is tuned to resonance at the operating frequency to produce standing electrostatic and electromagnetic waves in the interior of said box, means to couple a radio frequency energy transducer to said antenna structure, said means comprising a coaxial transmission line having a sheath conductor terminating at a conductive wall of said box and an inner conductor extending into the



interior of said box, and a further conductive element connected to said inner conductor at the innermost end thereof, at least a portion of said further conductive element comprising a substantially plane surface of dimensions greater than the cross-sections of said inner conductor arranged in energy transfer relationship to one of the conductive walls of said box.

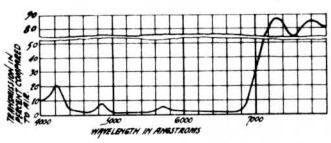
2,629,052
SCANNING ANTENNA
Harley Iams, Venice, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application December 12, 1947, Serial No. 791,178
3 Claims. (Cl. 250—33.63)



1. A radio antenna for providing a beam whose direction varies with variation in frequency of energy applied thereto, including a hollow waveguide filled with insulating material having a dielectric constant substantially greater than unity, a series of radiator apertures in the wall of said waveguide, spaced apart from each other in the direction of propagation of energy along said guide, and an array of further waveguides, one end of each of said further waveguides being positioned with respect to the corresponding ends of the others of said further waveguides so that said ends lie in a line parallel and adjacent to the line of said radiator apertures, and the other ends of said further waveguides being similarly positioned with respect to each other to define a second line, the length of each of said further waveguides differing from those of its neighbors by a predetermined amount.

SECTION VIII. MISCELLANEOUS APPARATUS
(Counters, Computers, Power Supplies, etc.)

2,624,238
SELECTIVELY REFLECTING INTERFERENCE MIRRORS
Mary E. Widdop, Oaklyn, and Glenn L. Dimmick, Haddon Heights, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application October 29, 1949, Serial No. 124,268
4 Claims. (Cl. 88—105)



1. An optical device comprising a glass base having a certain index of refraction, said base having a surface carrying at least three superimposed groups of optically thin interference coating layers, each of said groups being selectively reflective of light of different wavelength bands having peaks spaced at least 300 Å. apart throughout the visible spectrum, each group being composed of at least two layers of different coating materials, each layer having a thickness of about ¼ of that peak wavelength to which its group is selectively reflective, alternate ones of said layers being composed of material having an index of refraction which is relatively high compared to that of said base and of material having an index of refraction which is relatively low compared to that of said base, and all of said groups of layers cooperating to reflect substan-

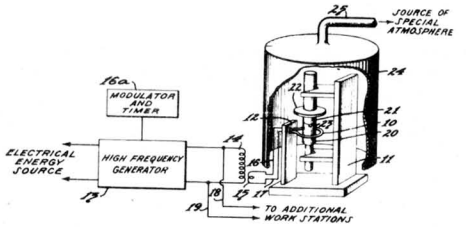
tially all wavelengths in the visible portion of the spectrum while transmitting a high proportion of infra-red.

2,625,637
HIGH-FREQUENCY INDUCTION WELDING APPARATUS AND PROCESS

Lloyd P. Garner and William N. Parker, Lancaster, Pa., assignors to Radio Corporation of America, a corporation of Delaware

Application March 30, 1948, Serial No. 17,824
5 Claims. (Cl. 219—4)

2. In an induction welding system including an oscillator, the improvement comprising a modulator and timer for controlling the output of said oscillator to provide a cycle including a relatively long preheat period, a relatively short welding period and a relatively long post-heating period for securing a good weld, said modulator and timer including a plurality of stators of arcuate form circulary arrayed, two of said stators having a relatively large arcuate extent, a third stator between said two of said stators and having a relatively small arcuate extent, a fixed voltage supply for each of said stators, the voltage supply for said third stator being higher in the direction of one polarity than the voltage supplies of said two of said stators, and a rotor



including a contact member having less arcuate extent than any one of said stators and rotatable at a constant velocity for individually and successively contacting said stators, whereby electrical connection of said rotor to the input of said oscillator provides a successively different energization of said oscillator for successively different time intervals for providing said preheat, welding and post-heating periods of said welding system.

2,626,103
POLYNOMIAL EQUATION SOLVER

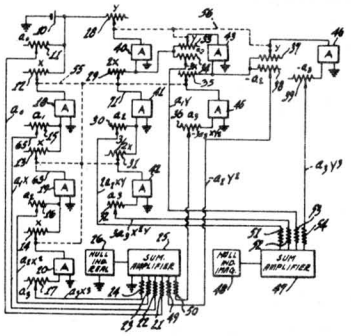
Robert Serrell, Princeton, and Edwin A. Goldberg, Princeton Junction, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application July 21, 1949, Serial No. 105,936
2 Claims. (Cl. 235—61)

1. An equation solver for a polynomial equation of the type

$$a_0+a_1(x+iy)+a_2(x+iy)^2 \ldots a_n(x+iy)^n$$

having real and imaginary terms and real and imaginary roots, said equation solver consisting of a plurality of linear amplifiers, a plurality of linear potentiometers, one for each coefficient, one for each x, and one for each y in said equation, all said coefficient potentiometer sliders being positioned to represent coefficients in said equation, all said x potentiometer sliders being ganged together to be movable simultaneously, all said y potentiometer sliders being ganged together to be movable simultaneously, means to apply a unit potential to a first x potentiometer, to a first y potentiometer and to a coefficient potentiometer representative of the coefficient a_0, a plurality of first means to couple in cascade a number of said x potentiometers and coefficient potentiometers to the slider of said first x potentiometer to simulate the real terms a_1x to a_nx^n in said equation, a plurality of second means to couple in cascade remaining ones of said x potentiometers, y potentiometers and coefficient potentiometers to the slider of said first y potentiometer to simulate the remaining real and imaginary terms of said equation, first and second summing means, first and second null indicating means respectively connected to the

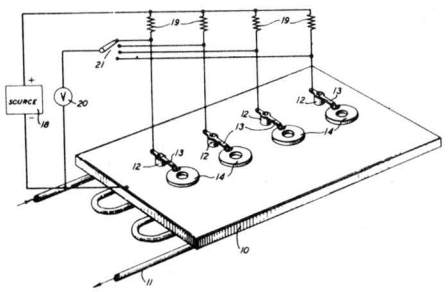


outputs of said first and second summing means, all the sliders of the coefficient potentiometers which are used to simulate said real terms being electrically connected to said first summing means, all the sliders of the coefficient potentiometers which are used to simulate said imaginary terms being electrically connected to said second summing means, and means to adjust said ganged x potentiometer sliders and said ganged y potentiometer sliders whereby these sliders are positioned at values respectively representative of the real and imaginary roots of said equation whenever both said null indicators indicate a null.

2,626,448
APPARATUS FOR AND METHOD OF TREATING SELENIUM RECTIFIERS

John N. Shive, North Plainfield, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

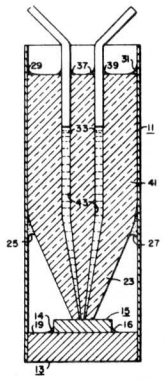
Application August 26, 1947, Serial No. 770,576
9 Claims. (Cl. 29—25.3)



1. Apparatus for electrically forming a plurality of selenium rectifier units simultaneously, comprising a voltage source, means for connecting the units in parallel to said source in such polarity relation as to pass current through each unit in

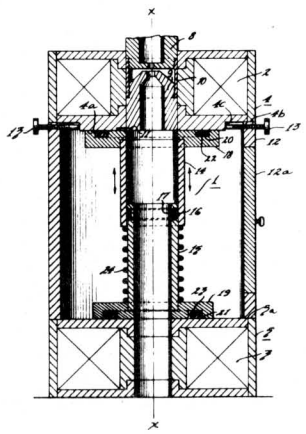
the reverse direction, and individual impedance means for said units connected in circuit with said source, each impedance means being of such magnitude as to maintain the power dissipated in the respective unit substantially constant throughout the forming process.

2,627,545
SEMICONDUCTOR DEVICE
Daniel R. Muss and Lloyd P. Hunter, Pittsburgh, Pa., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application August 19, 1950, Serial No. 180,374
21 Claims. (Cl. 175—366)



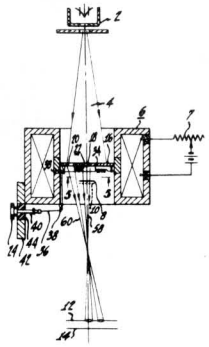
1. A semi-conductive device comprising a body of semi-conductive material and an electrode comprising a glass tube having a tapered end portion, the inside dimension of said tube at the tip of said tapered end being substantially smaller than the inside dimension of said tube at the beginning of said tapered portion, conductive material in said tube forming a conductive path from the tip of said tube to its opposite end, the tip of said tube being in contact with said body.

2,627,580
DEMOUNTABLE VACUUMTIGHT SEAL
Robert G. Picard, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 23, 1948, Serial No. 56,176
4 Claims. (Cl. 250—49.5)



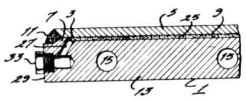
2. In an electron microscope including a column portion, a section of said column forming a chamber bounded by end faces, an access opening for said section, and a door for said opening, the improvement consisting of a collapsible unit in said chamber and forming a portion of the electron channel of said column, said unit comprising at least two telescopically arranged hollow cylinders having an expanded length at least as great as the distance between said end faces and a collapsed length such that the unit is capable of passing through said opening, the free ends of said cylinders having annular flanges adapted to be presented to said end faces.

2,627,589
FOCUSING OF ELECTRON OPTICAL APPARATUS
Sidney G. Ellis, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 30, 1950, Serial No. 192,840
4 Claims. (Cl. 315—31)



3. An electron diffraction camera comprising means for forming a beam of electrons, a lens for focussing said beam, means for changing the strength of said lens, a viewing screen, a diaphragm positioned adjacent said lens, a central aperture in said diaphragm, an off-center aperture in said diaphragm, and means for permitting passage and for shutting off passage of electrons through said off-center aperture.

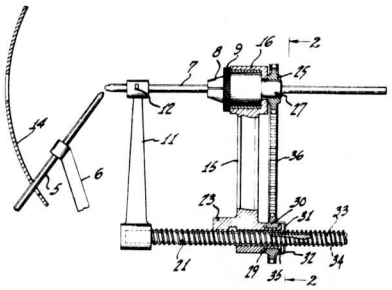
2,627,628
MOLDING CUSHION
Victor T. Paré, Westmont, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 25, 1949, Serial No. 112,220
3 Claims. (Cl. 18—17)



1. In a molding apparatus, a mold platen having a recess defined by rigid walls in one face thereof, a diaphragm of relatively thin flexible material secured to the walls defining said recess

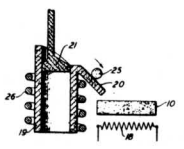
thereby defining a completely sealed chamber in said platen, a cushion comprising an alloy completely filling said chamber, said alloy being characterized by having a substantially zero co-efficient of expansion in passing between the molten and the solid states, and said alloy being characterized further by having a substantially zero co-efficient of expansion with time after solidification thereof, whereby said cushion may accommodate a heating of said platen during a part of a molding process followed by a chilling of said platen.

2,628,324
ARC LAMP CARBON MECHANISM
Cecil N. Batsel, Santa Monica, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application April 27, 1950, Serial No. 158,418
8 Claims. (Cl. 314—41)



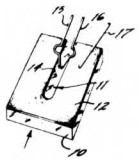
1. An arc lamp carbon control, comprising a rotatable chuck for holding a carbon, a bearing mount for said chuck, a screw feed mechanism for moving said mount, chuck, and carbon longitudinally, said mechanism including a bracket for supporting said bearing mount, a feed screw passing through an enlarged opening in one end of said bracket, a threaded extension from said one end of said bracket in threaded contact with said screw, a bearing extension on said one end of said bracket and oppositely disposed from said threaded extension, and drive connections between said screw and chuck for continuously rotating said chuck and carbon as said carbon is moved longitudinally, said drive connections including a rotatable drive element mounted on said bracket bearing extension and driven by said screw.

2,629,672
METHOD OF MAKING SEMICONDUCTIVE TRANSLATING DEVICES
Morgan Sparks, Summit, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application July 7, 1949, Serial No. 103,474
8 Claims. (Cl. 117—37)



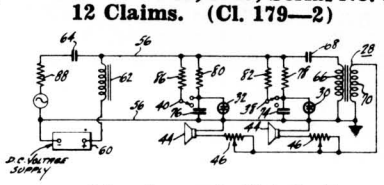
5. The method of making a semiconductive body for translating devices which comprises dropping a globule of molten P conductivity type semiconductive material selected from the group consisting of germanium and silicon, upon a heated body of N conductivity type material selected from the group consisting of germanium and silicon, in an oxygen free atmosphere, cooling the globule base unit, and heating the unit thus formed to reconvert to N-type any of the initially N-type material that had been converted to P-type.

2,629,767
SEMICONDUCTOR AMPLIFIER OR OSCILLATOR DEVICE
Herbert Nelson, Bloomfield, and Bernard N. Slade, Morristown, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application August 31, 1949, Serial No. 113,304
8 Claims. (Cl. 175—366)



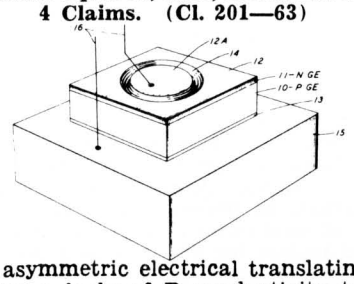
1. A semi-conductor device comprising a semiconducting body having contiguous conductive and semi-conductive surface portions, and a plurality of small-area electrodes in contact with a semi-conductive surface portion and disposed closely adjacent to each other and to said conductive surface portions.

2,629,780
ILLUMINATION AND SIGNALING SYSTEM FOR DRIVE-IN THEATERS
John F. Byrd, Ashland, and James D. Phyfe, Moorestown, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application March 31, 1949, Serial No. 84,703
12 Claims. (Cl. 179—2)



1. In a combined sound distributing and signalling and illumination system for an outdoor theater, the combination of transmission lines to distribute sound signals to sound reproducing stations, each of said sound reproducing stations comprising a junction box and a pair of loudspeakers mounted on said junction box for ready removal therefrom, each of said loudspeakers having a protective housing, a pair of glow lamps mounted on said junction box, and a control switch mounted on each of said loudspeaker housings, said switches being electrically coupled to said glow lamps to control their illumination for signalling, means to impress direct current electrical energy to illuminate said glow lamps upon said transmission lines, and means to isolate the glow lamp illuminating energy from said loudspeakers.

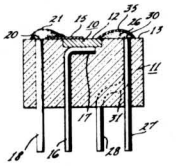
2,629,800
SEMICONDUCTOR SIGNAL TRANSLATING DEVICE
Gerald L. Pearson, Millington, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application April 15, 1950, Serial No. 156,188
4 Claims. (Cl. 201—63)



1. An asymmetric electrical translating device comprising a body of P conductivity type germanium having on one surface thereof an integral skin of N conductivity type germanium of the order of 0.002 inch thick, a large area ohmic connection to said body, and an ohmic connection to the outer face of said skin and substantially coextensive therewith.

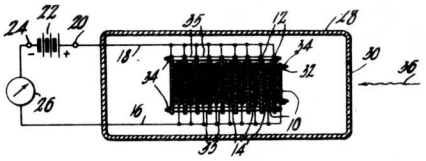
2,629,802
PHOTOCELL AMPLIFIER CONSTRUCTION
Jacques I. Pantchechnikoff, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 7, 1951, Serial No. 260,443
11 Claims. (Cl. 201—63)

1. An integral semi-conductor photoresponsive and amplifier device comprising a semi-conducting body, insulating means for embedding said body with at least one surface exposed, a light transmitting metallic film extending over and contacting a portion of said exposed surface, means providing a first, a second and a third conductor, a first coating layer for said insulating means interconnecting said film with said first conductor, a second coating layer for said in-



sulating means extending between said second conductor and said exposed surface, a third coating layer for said insulating means extending between said third conductor and said exposed surface, said coating layers consisting of low-resistance material, and said second and third coating layers being spaced from said film and having substantially straight closely adjacent edges extending over a portion of said exposed surface.

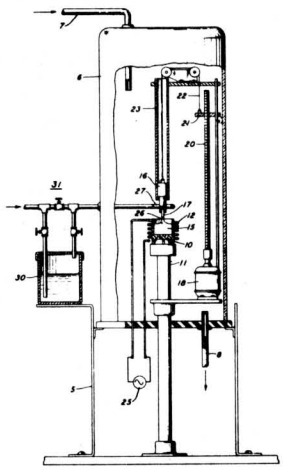
2,631,246
RADIATION DETECTION
Schuyler M. Christian, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 28, 1950, Serial No. 146,730
15 Claims. (Cl. 250—83.6)



1. A radiation detection device comprising a plurality of anode members of a metal of atomic weight less than fifty, a plurality of cathode members of a metal of atomic weight greater than fifty, and a plurality of multiply perforate mesh dielectric spacer members, said members being assembled in parallel layers with a spacer in physical contact and between each anode and cathode member, said anode and cathode members being respectively electrically directly connected together.

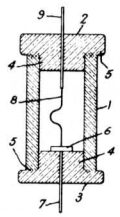
2,631,356
METHOD OF MAKING P-N JUNCTIONS IN SEMICONDUCTOR MATERIALS
Morgan Sparks and Gordon K. Teal, Summit, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application June 15, 1950, Serial No. 168,181
6 Claims. (Cl. 29—25.3)

1. The method of making p-n junctions in semiconductor material which comprises melting a mass of material of one electrical conductivity type, maintaining the melt at a temperature above the melting point, partly immersing in the melt a seed crystal of the material of the opposite electrical conductivity type and lifting the crystal from the melt at a rate substantially the



same as the rate of solidification of the material uplifted from the melt adherent to the crystal.

2,633,489
CRYSTAL VALVE OR RECTIFIER
Thomas H. Kinman, Rugby, England, assignor to General Electric Company, a corporation of New York
Application March 25, 1952, Serial No. 278,367
In Great Britain April 3, 1951
3 Claims. (Cl. 175—366)



1. A point contact rectifying device comprising a whisker assembly including a lead-in conductor and whisker, a crystal assembly including a lead-in conductor and crystal, a tubular glass casing, means supporting said whisker and crystal within said casing with said whisker in contact with said crystal cromprising a pair of glass washers each apertured to receive one of said lead-in conductors and each having a flange portion resting on one end of said casing and a projecting portion extending into said casing and conforming in size and shape with the interior wall of said casing, said washers being fused respectively to said lead-in conductors and the opposite ends of said casing.

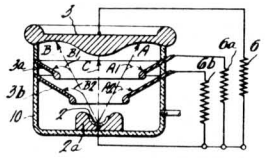
2,633,542

HIGH EFFICIENCY NUCLEAR ELECTROSTATIC GENERATOR

John H. Coleman, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application June 30, 1948, Serial No. 36,206
16 Claims. (Cl. 310—3)

1. Apparatus for primarily generating electrical energy including a source of radioactive particle radiations, means disposed in a first region adjacent to said source and responsive to a portion of said radiations for establishing a first potential with respect to said source, means disposed in a second region adjacent to said source and responsive to the remainder of said radiations for establishing a second potential with respect to said source, means for applying said first potential to deflect a portion of said remainder of said radiations into said second region, and means for utilizing said potentials to provide electric currents.



6. Apparatus for primarily generating electrical energy including a source of radioactive material providing charged particle emission, means disposed in a region adjacent to said source responsive to at least a portion of said charged particle emission for establishing a potential with respect to said source, a plurality of second means disposed in a plurality of second regions adjacent to said source responsive to at least a portion of said charged particle emission for establishing potentials with respect to said source, the first said means being disposed adjacent to said plurality of second means for exerting its said potential on at least a portion of said charged particle emission to deflect this last-mentioned portion into the said plurality of second regions for establishing increased potentials therein with respect to said source and said plurality of second means, and means for utilizing said potentials.

Chester W. Sall

Chester W. Sall