E. W. Fields

LB-942

Licensee Patent Bulletin

Series 54-1

RADIO CORPORATION OF AMERICA
RCA LABORATORIES DIVISION
INDUSTRY SERVICE LABORATORY

RADIO CORPORATION OF AMERICA

RCA LABORATORIES DIVISION

INDUSTRY SERVICE LABORATORY

LB-942

Licensee Patent Bulletin

Series 54-1

January 1, 1954 to March 31, 1954

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. 2,075,786 have expired on or before March 30, 1954.

DISCLAIMERS FILED IN THE UNITED STATES PATENT OFFICE

2,501,545.—*Robert L. Sproull,* Penns Neck, N. J. FREQUENCY MODULATION SYSTEM. Patent dated Mar. 21, 1950. Disclaimer filed Mar. 5, 1954, by the assignee, *Radio Corporation of America.*

Hereby enters this disclaimer of the terminal part of the term of said Patent No. 2,501,545 which extends beyond the expiration date, Jan. 3, 1967, of Patent No. 2,493,091.

Contents

SECTION I. RADIO BROADCAST RECEIVERS

I-A. Sound Receivers (includes Phonographs)

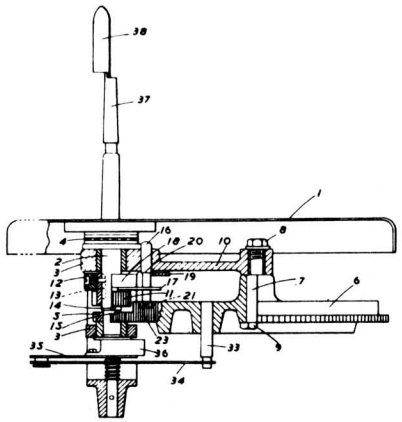
2,667,250

AUTOMATIC MECHANISM FOR PHONOGRAPH RECORD PLAYING APPARATUS

Alexander James Rae, West Ealing, London, England, assignor to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain

Application March 6, 1951, Serial No. 214,051
Claims priority, application Great Britain March 8, 1950
5 Claims. (Cl. 192—33)

1. Automatic mechanism for phonograph record playing apparatus comprising a control disc, means for driving said disc, a clutch including a driven element coupled to said disc, a driving element coupled to said driving means, means for engaging said driving element with said driven element to drive said disc to initiate an automatic cycle, means operated from said disc to move said driving element out of engagement with said driven element after a predetermined angular movement of said control disc, and



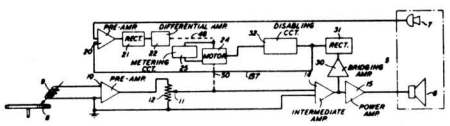
means for coupling said driving element with the disc to drive the disc for a limited extent beyond said predetermined angular movement.

2,668,874

AUTOMATIC VOLUME CONTROL

Herbert W. Augustadt, Westfield, and Walter F. Kannenberg, Gillette, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application January 10, 1950, Serial No. 137,732
7 Claims. (Cl. 179—1)



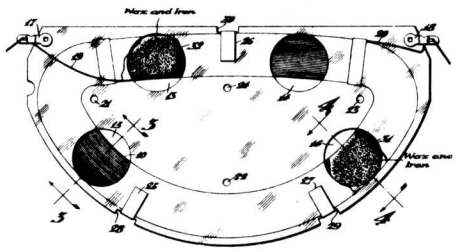
1. An electrical program reproducing system comprising means for controlling the system gain responsively to the noise level preceding the program and means for disabling the controlling means during program reproduction, said system gain controlling means including a source of unidirectional voltage varying in magnitude with noise level, means responsive to a critical value of said voltage to increase the system gain, a normally released delay-operate relay also responsive to said critical voltage value, whereby said relay operates to disable said gain controlling means a predetermined time after the commencement of a gain increasing operation of said controlling means during any one interval of no program, said relay being subsequently released by operation of said means for disabling the controlling means during program reproduction, and means for controlling the duration of said predetermined time.

2,669,528

PROCESS OF INCREASING THE INDUCTANCE OF A LOOP ANTENNA

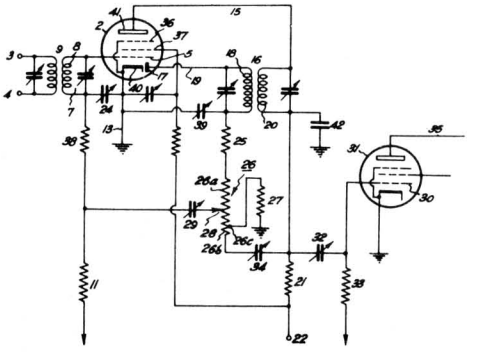
Alphonse Charles Stelzer, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware

Original application May 11, 1950, Serial No. 161,436. Divided and this application April 19, 1951, Serial No. 221,891
1 Claim. (Cl. 117—37)



The process of increasing the inductance of a loop antenna of insulated wire to a predetermined inductance value which comprises depositing on at least one preselected, isolated bare portion of the loop antenna a hot melt of a low melting-point impregnating wax having dispersed therethrough a ferromagnetic powder, permitting said hot melt to solidify, and thereafter sequentially measuring the inductance of the coated loop antenna and depositing additional increments of said hot melt at other separate and distinct preselected bare portions of said loop antenna until the desired predetermined inductance value is obtained, the total deposit of ferromagnetic powder being an amount sufficient to raise the inductance of the loop antenna to the desired predetermined value.

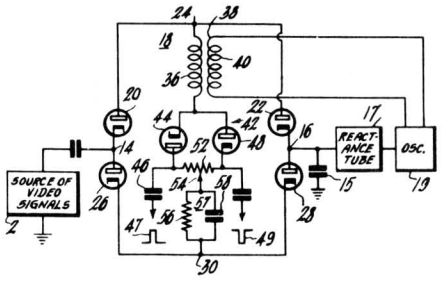
2,673,255
VOLUME CONTROL ARRANGEMENT FOR RADIO RECEIVERS
Eric Watkinson, Denistone, near Sydney, New South Wales, Australia, assignor to Amalgamated Wireless (Australasia) Limited, Sydney, New South Wales, Australia, a corporation of New South Wales
Application August 7, 1951, Serial No. 240,742
Claims priority, application Australia September 27, 1950
2 Claims. (Cl. 179—171)



1. In a radio receiver, a volume control arrangement comprising an amplifying valve, means for applying modulated high frequency signal voltage to the input circuit of said valve, means for rectifying the energy appearing in the output circuit of said valve, means for applying, to the input circuit of said valve, audio-frequency signals developed across a portion of the output circuit of said rectifying means, a potentiometer having high and low resistance sections and a moving contact for manually varying the amplitude of the audio-frequency signal voltage applied to the input of said valve, said high resistance section being included in the output circuit of said rectifying means, and said amplitude varying from maximum to a predetermined minimum during the adjustment of said moving contact from one end of said high resistance section to a tapping point at the junction between said high and low resistance sections, means comprising a resistance connected between said tapping point and the cathode of said valve for preventing reduction to zero of said audio-frequency signal voltage by adjustment of said moving contact to said tapping point, and a feedback circuit connected to the end of said low resistance section remote from said tapping point for applying to the input circuit of said valve, in degenerative sense, and varying degree, a portion of the audio-frequency energy appearing in the output of said valve so that the amplitude of the feedback potentials increases as said moving contact is moved from said tapping point towards said end of said low resistance section.

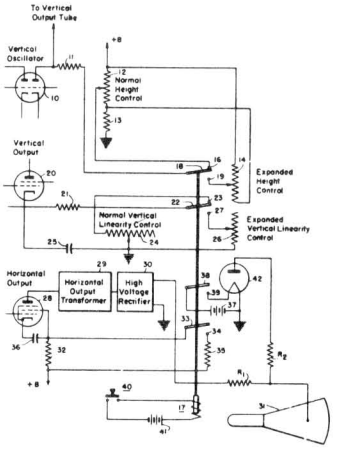
I-B. Television Receivers (includes Facsimile)

2,666,136
FREQUENCY SYNCHRONIZING APPARATUS
Marshall M. Carpenter, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 31, 1950, Serial No. 193,182
4 Claims. (Cl. 250—27)



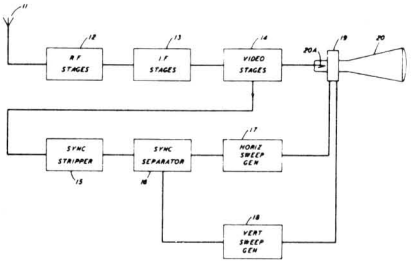
4. Apparatus for deriving a control voltage indicative of the amplitude and sense of the phase difference between two alternating current voltage waves, one of which occurs in bursts, the other being continuous comprising in combination, first and second terminals, a source of signals in which said bursts occur at predetermined intervals, a storage condenser coupled in series with said source, said series combination being connected between said terminals, a first unilateral current conducting device coupled between said terminals, a second unilateral current conducting device coupled between said terminals and in parallel with said first unilateral device, said first and second unilateral devices being connected so as to pass current in opposite directions between said terminals, means for biasing each of said unilateral current conducting devices to cut off, means for applying said continuous alternating waves in series with each of said unilateral devices, the amplitude of said waves being less than the cut-off bias applied to said unilateral current conducting devices, means for applying keying pulses in series with each of said unilateral devices, said keying pulses being of such polarity as to tend to overcome said cut-off bias applied to each of said unilateral current conduction devices, the amplitude of said keying pulses being such that when combined with the amplitude of said continuous wave, the cut-off bias applied to said unilateral current conducting devices is overcome for a portion of each cycle of said continuous alternating current wave occurring during said keying pulses thus permitting current to flow through one of said unilateral devices and charge said storage condenser in one polarity during a portion of the positive excursion of the alternating current wave occurring in bursts and to flow through the other unilateral current conducting device and charge said storage condenser in the opposite polarity during a portion of the negative excursions of the alternating current wave occurring in bursts so that the net charge on said condenser is dependent on the phase relationship between the alternating current waves occurring in bursts and the continuous alternating current waves.

2,666,867
SWITCHING CIRCUIT
Alden Packard, Sunbury, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application December 27, 1950, Serial No. 202,868
5 Claims. (Cl. 315—19)



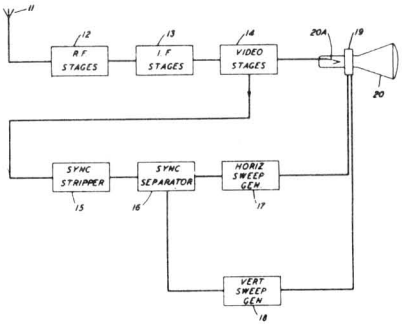
1. In combination with a television picture tube having a second anode, a circuit for generating a horizontal scanning current for said tube and for supplying direct current voltage to said anode, means for modifying said circuit for increasing the horizontal scanning angle of the electron beam of said tube, means operated concurrently with said last mentioned means for reducing the voltage at said anode, said means comprising an electron tube and a resistor connected in series to said anode and to ground, and means for causing said electron tube to conduct.

2,668,872
VERTICAL SYNCHRONIZING SYSTEM
Charles W. Harrison, Gillette, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application August 10, 1951, Serial No. 241,241
5 Claims. (Cl. 178—69.5)



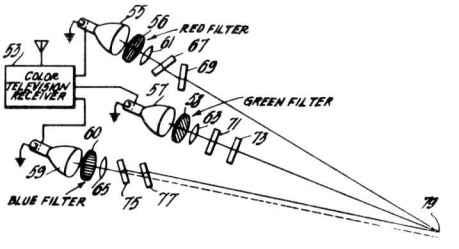
1. A synchronizing separator system comprising an input source of composite synchronizing signals including a first series of pulses of a first recurrent frequency and a second series of longer serrated pulses of a lower recurrent frequency, low-pass filter means supplied with said composite signal having an upper cut-off frequency below said first recurrent frequency and above said second recurrent frequency for providing a first output, means also supplied with said composite synchronizing signal responsive to leading edges of the pulses of said composite signal for providing a second output, means for combining said first and second outputs into a combined output, means for clipping said combined output at a level greater than the maximum amplitude level of either said first or second outputs, and means for utilizing the output of said clipping means.

2,668,873
VERTICAL SYNCHRONIZING SYSTEM
Robert E. Graham, Chatham, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application August 10, 1951, Serial No. 241,242
3 Claims. (Cl. 178—69.5)



1. A synchronizing separator for deriving vertical synchronizing signals in a television receiver comprising an input source of a composite synchronizing signal including a first series of pulses recurrent at the television line frequency and a second series of longer serrated pulses recurrent at the television field frequency, low-pass filter means supplied with said composite synchronizing signal having an upper cut-off frequency below said line frequency and above said field frequency for providing a filtered output, adding means supplied with said filtered output and said composite synchronizing signal for providing a combined output, and clipping means supplied with said combined output for deriving a signal characteristic of the second series of pulses.

2,669,900
OPTICAL PROJECTION AND REGISTRATION SYSTEM
William H. Cherry, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 1, 1949, Serial No. 73,877
8 Claims. (Cl. 88—24)

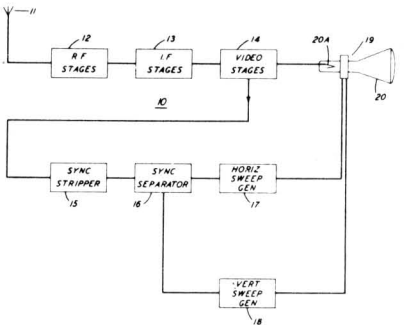


1. An optical system for registering two points of light at an imaging point comprising a pair of

point of light sources, a plurality of clear elements each having refractive indices differing from the refractive index of air and each transparent element having two parallel surfaces through which the same and substantially all the light will pass from only one of said light sources, and means for tilting each of said transparent elements, with respect to each other and with respect to said last referenced light source to independently change the effective optical distance between the light source last referred to and said imaging point and to change the position of the imaging point of said last referenced light source.

2,671,133
VERTICAL SYNCHRONIZING GENERATOR
Robert E. Graham, Chatham, and Charles W. Harrison, Gillette, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application August 10, 1951, Serial No. 241,243
2 Claims. (Cl. 178—69.5)

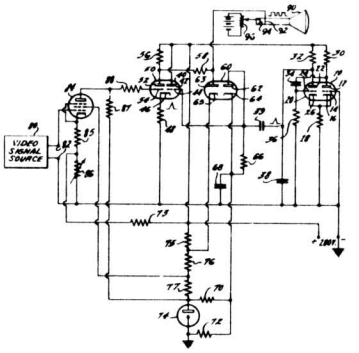
1. A synchronizing separator for deriving vertical synchronizing pulses for a television receiver comprising an input source of a composite synchronizing signal including a first series of pulses recurrent at the line television frequency and a second series of longer serrated pulses recurrent at the television field frequency, low pass filter means having its upper cut-off frequency below the line frequency and above the field frequency, subtracting means supplied with the composite signal and the filter output for deriving a difference signal, and clipping means supplied with



said difference signal for deriving a series of vertical synchronizing pulses.

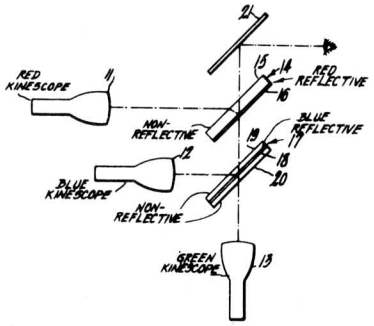
2,671,871
SIGNAL TRANSLATING APPARATUS CORRECTION SYSTEM
Harold E. Haynes, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application July 31, 1951, Serial No. 239,560
5 Claims. (Cl. 315—30)

1. The combination, with a kinescope of the type used to display video signals, of apparatus for compensating for the non-linear transfer characteristics of said kinescope comprising means to generate uniform sawtooth pulses at a rate sufficiently high to prevent resolution of dot structure on said kinescope, means to modify said pulses and to control the duration of each



of said modified pulses in accordance with a predetermined function of said video signals, and means to apply said last named pulses to said kinescope to control duration of intervals in which the cathode ray beam of said kinescope is turned on.

2,672,502
COLOR-SELECTIVE OPTICAL SYSTEM
James E. Albright, Haddon Township, Camden County, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 19, 1950, Serial No. 191,068
19 Claims. (Cl. 178—5.4)

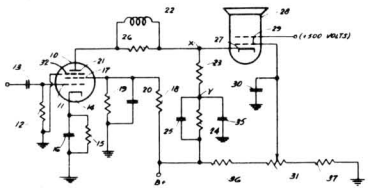


1. In a color-selective optical system for combining images derived from a plurality of sources of light of different colors, dichroic reflecting apparatus disposed to receive from different directions light from two of said sources, said dichroic apparatus including a color-selective layer of a material capable of transmitting light of at least one particular one of said colors and of reflecting light of at least another particular one of said colors, and a transparent optical member capable of transmitting substantially indiscriminately light of both of said particular colors and having at least a portion thereof located between said color-selective layer and the source of light reflected by said layer, whereby light of both of said particular colors is caused to traverse said transparent optical member.

2,672,505
BLACK LEVEL SHIFT COMPENSATING AMPLIFIER
Hans G. Schwarz, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware
Application June 13, 1950, Serial No. 167,906

1 Claim. (Cl. 178—7.5)

In a television receiver, the combination comprising a vacuum tube amplifying stage having an input circuit, a gain control circuit and an output circuit; a kinescope having a grid-cathode input circuit coupled to the output of said amplifying stage; a composite source of television signals having sync peaks of substantially constant level, picture signal components varying as a function of image brightness and a D. C. component; means coupling said composite source to the input circuit of said amplifying stage; means including a resistance-capacitance network in the gain control circuit of said amplifying stage for varying the gain of said amplifying stage as an inverse function of the average brightness value of the television signal; a second resistance-capacitance network coupled in the grid-cathode circuit of said kinescope for maintaining the black-level of the kinescope input signal independent of gain variations in said amplifying stage, both of said networks having a time constant on the order of a signal frame frequency period; whereby the gain of the amplifying stage increases as the average brightness content of the picture signal decreases.



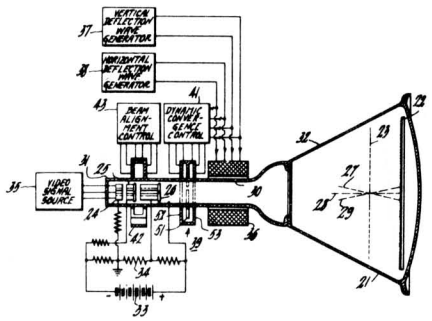
2,672,574

MAGNETIC BEAM CONTROLLING SYSTEM

John E. Evans, Blawenburg, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 19, 1952, Serial No. 277,490

16 Claims. (Cl. 315—13)



1. In a cathode ray tube image-reproducing system wherein a plurality of electron beams, which traverse pre-deflection paths that are spaced respectively about the longitudinal axis of the tube, are angularly deflected both horizontally and vertically to scan a raster in a predetermined plane, an electron beam convergence system comprising, a double magnetic lens having individual field-producing means respectively influencing said electron beams, said lens being located adjacent said pre-deflection paths of said beams, and means controllable to selectively vary the individual beam-influencing fields produced by said magnetic lens to direct said beams relative to one another and to said longitudinal tube axis so as to effect substantial convergence of said beams at all points of the scanned raster.

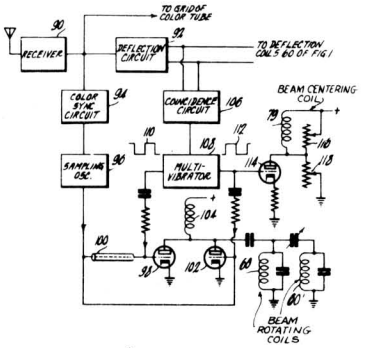
2,672,575

APPARATUS FOR REPRODUCING IMAGES IN COLOR

Peter H. Werenfels, Lawrenceville, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application October 11, 1951, Serial No. 250,867

3 Claims. (Cl. 315—22)



1. Cathode ray tube apparatus comprising in combination a directional target having different color phosphors mounted in groups along each line of the raster, an electron gun adapted to direct a beam of electrons toward said target along a given path, means for bending said electrons away from said path, the plane in which said bending occurs being rotated, means for focusing said beam in the region of said target, means for deflecting said beam so that it scans a raster at said target, means located between said gun and said focusing means for directing the electrons along a given path during a first interval and for directing said electrons along a different path during a second interval whereby said rotating beam scans the different color phosphors on said directional target in one sequence during the first interval and in reverse sequence during the second interval.

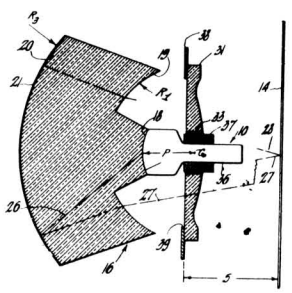
2,673,977

SCHMIDT TELEVISION PROJECTOR

David W. Epstein, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application January 3, 1949, Serial No. 68,877

1 Claim. (Cl. 340—370)



A projector for images produced in operation

correcting plate and a viewing screen, means providing an immersed region for a portion of the light path in said projector from the tube to the viewing screen, said immersed region having an index of refraction N and being bounded by three portions of spheres, one of said portions being in optical contact with the face of the tube and having a radius of curvature determined by the focal length of the system, the surface of another of said portions being reflective to constitute a mirror, and the third surface being the exit surface for light reflected at the surface of the reflective portion, said reflective surface and said exit surface being concentric and having their centers located at a distance p from the surface in optical contact with the tube face determined by the formula

$$p=\frac{f(m-N)}{m}$$

light from said exit surface passing therefrom through said correcting plate to said screen.

I-C. Converters, Tuners & Tuning Indicators

2,668,198

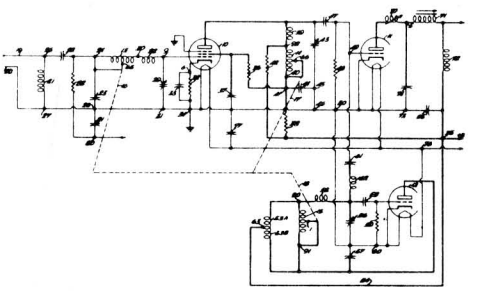
TUNER FOR TELEVISION RECEIVERS

Emmery J. H. Bussard, Cincinnati, Ohio, assignor to Avco Manufacturing Corporation, Cincinnati, Ohio, a corporation of Delaware

Original application May 5, 1950, Serial No. 160,316, now Patent No. 2,615,983, dated October 28, 1952. Divided and this application May 8, 1951, Serial No. 225,083

2 Claims. (Cl. 179—171)

1. In an input tuner for a television receiver of the type which includes an antenna system having an unbalanced transmission line, the combination of: First, a three element π-type reactive impedance-matching network having two arms, said network comprising an input shunt inductor arm connected across said transmission line, a series capacitor connected between the arms and an output shunt capacitor arm, said inductor arm providing attenuation against carrier signals having frequencies on the order of those of the amplitude modulation broadcast band (540 to 1600 kilocycles), said inductor arm and said series capacitor being series resonant at a frequency above the intermediate frequencies of said television receiver and considerably below the television bands extending from 54 to 216 megacycles, whereby said inductor and series capacitor function as a high pass filter to reject the undesired signals of frequencies below the series resonant frequency, both of said capacitors functioning as a capacitance divider to step down the impedance between the input and output of said impedance-matching network, the circuit comprising both of said arms and said series capacitor being tuned to parallel resonance at a frequency close to that of the lowest television channel, whereby the output of the impedance-matching network appears to be capacitively reactive throughout the television

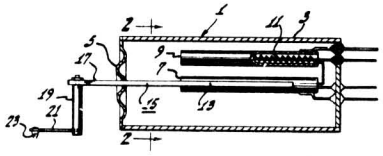


band and substantial carrier frequency current is built up across said output capacitor arm; Second, a low impedance input, high impedance output, L-type selector network, comprising: an output shunt capacitor arm and series manually variable inductance, connected between the high potential terminal of the output arm of said π-type reactive impedance-matching network and the selector network output arm, said L-type network being tuned to series resonance to select the desired television channel and at the same time providing impedance transformation from a low impedance at its input to a high impedance at its output; and, Third, a radio frequency amplifier stage having a cathode-control electrode input circuit coupled to the output shunt capacitor arm of said selector network, and means for stabilizing the input capacitance and conductance of said tube comprising a stabilizing resistor in circuit with said cathode and the capacitance between said cathode and control electrode which consists of a series combination of said output arm capacitor of said selector network and another capacitor connected in shunt with said stabilizing resistor.

I-D. Loudspeakers and Pick-Ups

2,666,200
ELECTRONIC TRANSDUCER TUBE
Gardner L. Krieger, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 30, 1950, Serial No. 198,367
8 Claims. (Cl. 313—148)

1. An electron discharge device comprising an evacuated vessel having a flexible diaphragm as part of its wall structure, a first electrode mounted in fixed position within said vessel and adapted to emit electrons, a second electrode mounted in fixed position, parallel to and spaced from said first electrode within said vessel and adapted to emit electrons, a third electrode secured to said diaphragm extending inwardly of said vessel generally in a direction parallel to and spaced from both said first and second electrodes, said first and second electrodes being disposed equal distances from said third electrode and substantially 90° from each other in relation to said third electrode as a center, said third electrode being movable toward and away from both said first and second electrodes, and means connected

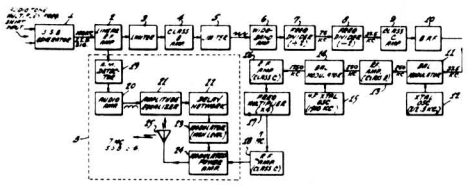


to said third electrode extending externally of said vessel for imparting movement to said third electrode.

SECTION II. COMMERCIAL RADIO APPARATUS

II-A. Sound Transmitters & Receivers

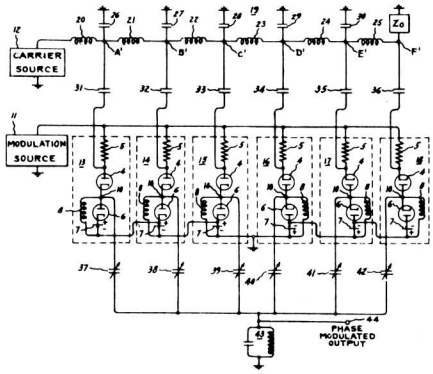
2,666,133
SINGLE SIDEBAND TRANSMITTER
Leonard R. Kahn, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application August 16, 1951, Serial No. 242,061
26 Claims. (Cl. 250—17)



1. In a transmitter, means for producing a single sideband signal in the form of a complex wave from a source of intelligence, said single sideband wave having amplitude modulation and phase modulation components, means for amplifying substantially only said phase modulation component, means for amplifying only the amplitude modulation envelope of said single sideband complex wave, and means for combining the amplified modulation envelope with the amplified phase modulation component to provide a resultant amplitude modulated and phase modulated wave representative of said single sideband complex wave.

2,666,181
PHASE MODULATION SYSTEM
Emmanuel P. Courtillot, Paris, France, assignor to General Electric Company, a corporation of New York
Application August 31, 1949, Serial No. 113,465
Claims priority, application France September 23, 1948
7 Claims. (Cl. 332—23)

1. A selector circuit for transmitting a first applied signal when the instantaneous amplitude of a second applied signal occurs between two discrete levels, comprising a pair of unilaterally conducting devices each having a pair of unlike poles, a common connection between one pair of unlike poles in said devices, said signals

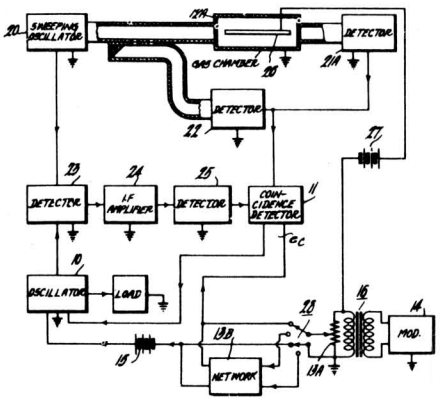


being applied across the other pair of unlike poles, said first signal being applied directly and said second signal being applied through a series impedance, a first source of bias voltage connected through an impedance to said common connection for polarizing one of said devices so that it conducts and transmits said first signal when the amplitude of said second signal exceeds one of said discrete levels, and a second source of bias voltage for polarizing said other device so that it conducts and short-circuits said first signal when the amplitude of said second signal exceeds the other of said discrete levels, said first signal being recovered at said common connection.

2,669,693
WIDE-BAND MODULATION OF FREQUENCY-STABILIZED OSCILLATORS

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

Application May 12, 1950, Serial No. 161,507
7 Claims. (Cl. 332—19)



6. A system for frequency-stabilizing and frequency-modulating the carrier of an oscillator including an electronic tube whose potential (e_i) affects the oscillator frequency (ω_0) in accordance with a transfer factor (μ) which comprises a feedback loop from the output system of said oscillator to said electrode, a frequency-error detector in said loop and including a resistance-reactance network having a transfer factor (β), a source of standard frequency (ω_s) coupled to said detector for production of a feedback potential applied to said electrode to affect the oscillator frequency in accordance with the relation

$$\omega_0=\frac{\mu}{1+\mu\beta}e_i+\frac{\mu\beta}{1+\mu\beta}\omega_s$$

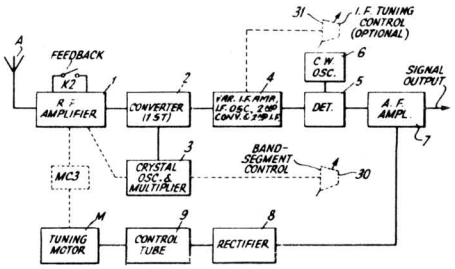
and modulating means for simultaneously varying said potential and the standard frequency in accordance with a modulating signal to such extents (de_i and $d\omega_s$) that the incremental change $(d\omega_0)_T$ of the oscillator frequency corresponds with

$$\frac{\mu de_i+\mu\beta d\omega_s}{1+\mu\beta}$$

2,671,168
AUTOMATICALLY TUNED RECEIVER

Harris A. Robinson, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware

Application July 14, 1948, Serial No. 38,655
8 Claims. (Cl. 250—20)

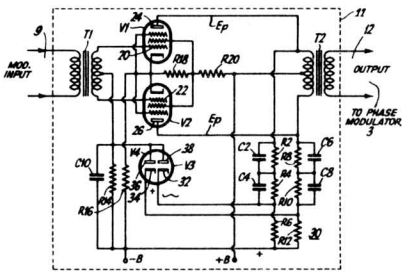


1. In apparatus for automatically tuning a tunable radio frequency stage feeding a frequency converter stage, a source of oscillations of fixed frequency coupled to the frequency converter stage, and side-band stages tuned to a known frequency coupled to said converter stage, means for setting up in said radio frequency stage oscillatory energy of variable frequency which corresponds to the frequency to which the radio frequency stage is tuned, means for varying the frequency of said oscillatory energy and correspondingly varying the tuning of said radio frequency stage, and automatically-operating means controlled by output from the side-band stage, said last-named means acting to inhibit operation of the frequency-varying means in response to the passage of sideband energy through said sideband stages.

2,673,332
PHASE MODULATION

Jarrett L. Hathaway, Manhassett, N. Y., assignor to Radio Corporation of America, a corporation of Delaware

Application May 13, 1948, Serial No. 26,775
3 Claims. (Cl. 332—18)



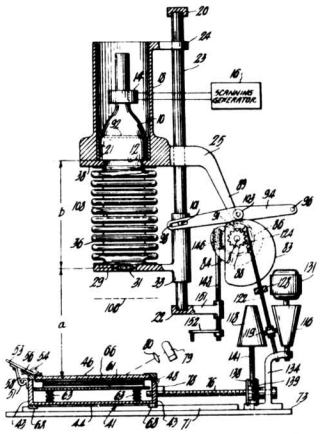
1. A phase modulation transmitter including circuits and apparatus for modulating the phase of alternating current the mean frequency of which is substantially constant, said circuits and apparatus including a path wherein modulation energy flows, said path including a pair of electron discharge devices each having electrodes including a control grid and an anode, a circuit for applying modulation energy differentially to said control grids, a circuit coupling said anodes in push-pull relation for supplying energy to the phase modulator, a pair of rectifiers each having an

anode and a cathode, a rectifier circuit including a resistor and a shunting condenser connected between the anodes and cathodes of said rectifiers, connections including said resistor between the control grids and cathodes of said devices, and a capacitive and resistive network which increasingly attenuates modulation energy as the frequency thereof decreases coupling the anodes of said devices to the cathodes of said rectifiers.

II-B. Television Transmitters (includes Facsimile)

2,666,094
FACSIMILE SCANNER HAVING ADJUSTABLE LENGTH OF SCANNING LINE
Charles J. Young, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 25, 1951, Serial No. 233,464
9 Claims. (Cl. 178—7.1)

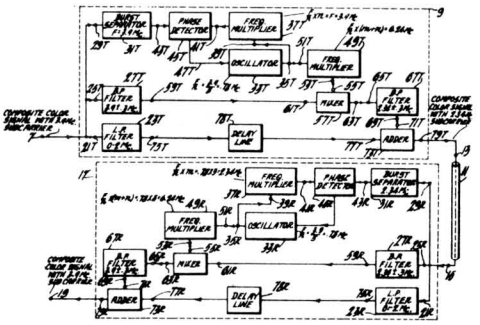
1. A facsimile scanner for scanning subject copy comprising means having an exposed surface traversed by a scanning light spot, means to support a piece of subject copy to be scanned by said light spot, optical means for imaging said light spot on subject copy supported by said copy supporting means, variable speed means for continuously feeding said copy supporting means in a direction transverse to the movement of said light spot, means to provide for movement of said surface toward or from said copy supporting means, means to support said optical means for



movement thereof toward or from said copy supporting means, and means to correlate movement of said surface, said optical means, and the speed of operation of said feed means for said copy supporting means, said variable speed means being continuously variable in accordance with movement of said surface and said optical means.

2,668,189
COLOR TELEVISION
Joseph G. Reddeck, New Brunswick, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 1, 1952, Serial No. 269,477
3 Claims. (Cl. 178—5.4)

1. Apparatus to shift the frequency of the color subcarrier of a composite color television signal



from a first frequency to a second frequency, the ratio of the higher of these frequencies "F" to the lower of these frequencies "*f*" being equal to

$$\frac{n}{m}$$

said composite color television signal including a burst at said first frequency, said apparatus comprising: a source of composite color television signal whose color subcarrier is at said first frequency, a first band pass filter having input and output terminals and designed to pass said first frequency together with sidebands of a predetermined width, a connection between the source of composite color television signal and the input terminal of said first band pass filter, a burst separator circuit having input and output terminals and arranged to separate said first frequency from said composite color television signal, a connection between the source of composite color television signal and the input terminal of said burst separator circuit, an oscillator having an output terminal and running at a frequency equal to F/n, a first multiplier having input and output terminals and whose multiplication factor is such that when connected to said oscillator the multiplier output will have a frequency equal to said first frequency, a connection between the oscillator output terminal and the input terminal of said first multiplier, a phase detector connected between the output terminals of said burst separator and of said first multiplier and arranged to produce a signal, a connection to apply said signal to said oscillator to lock its operating frequency with said first frequency, a second multiplier having input and output terminals and whose multiplication factor is equal to the sum of m and n, a connection between the output terminal of said oscillator and the input terminal of said second multiplier, a mixer having input and output terminals, a connection between an input terminal of said mixer and the output terminal of said second multiplier, a connection between the output terminal of said first band pass filter and

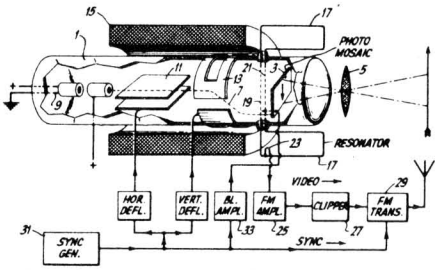
an input terminal of said mixer, a second band pass filter having input and output terminals and designed to pass said second frequency together with sidebands of a predetermined width, a connection between the output terminal of said mixer and the input terminal of said second band pass filter, a low pass filter having input and output terminals, a connection between said source of composite color television signal and said low pass filter input terminal, an adder circuit having input and output terminals, a connection between the output terminal of said low pass filter and an input terminal of said adder circuit, a connection between the output terminal of said second band pass filter and the input terminal of said adder circuit, utilization means having an input terminal, and a connection between the output terminal of said adder circuit and the input terminal of said utilization means.

2,668,190

TELEVISION IMAGE PICKUP SYSTEM

George C. Sziklai, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application July 5, 1947, Serial No. 759,279
6 Claims. (Cl. 178—7.2)



1. A device for converting images into electric signal trains comprising in combination an electron reflector electrode having an electron image forming surface, means for directing an electron scanning beam at said image forming surface, and a resonant signal output circuit having a capacitive element and an inductive element, said capacitive element comprising a pair of grid-like structures positioned in the path of said electron beam whose principal-plane is substantially parallel to said reflector electrode.

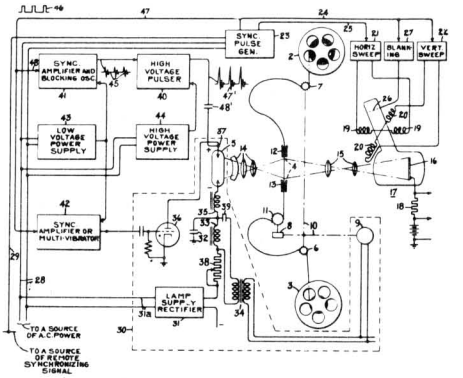
2,671,377

SYNCHRONIZED INTERMITTENT LIGHT SOURCE AND FILM DRIVING MECHANISM

Lloyd C. Downes, Los Angeles, Calif., and Winifred F. Baker, Syracuse, N. Y., assignors to General Electric Company, a corporation of New York

Application May 11, 1951, Serial No. 225,897
8 Claims. (Cl. 88—18)

1. The combination, in motion picture apparatus of the type wherein images from a moving picture film are recurrently projected upon a screen, of a lamp, a capacitance connected in series with said lamp, means for charging said capacitance and then discharging said capacitance through said lamp recurrently to produce recurrent



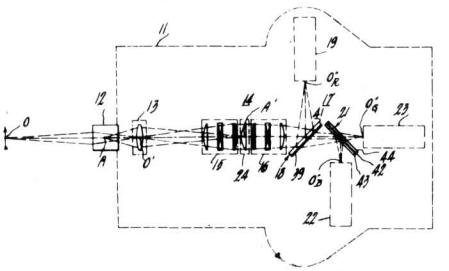
flashes of light for illuminating said film, the recurrent charging and discharging of said capacitance causing alternations in current flow to said capacitance, a recurrent film driving mechanism, electromotive means for operating said film driving mechanism in step with alternations supplied thereto, and coupling means coupled between said capacitance and said electromotive means for coupling said alternations in current flow to said capacitance to said electromotive means for the energization thereof, whereby the recurrent motion of said film is maintained in accurately timed relationship with respect to the recurrent illumination of said film.

2,672,072

COLOR TELEVISION OPTICAL SYSTEM

Lawrence T. Sachtleben, Haddonfield, and Glenn L. Dimmick, Haddon Heights, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application March 15, 1951, Serial No. 215,722
6 Claims. Cl. 88—1)

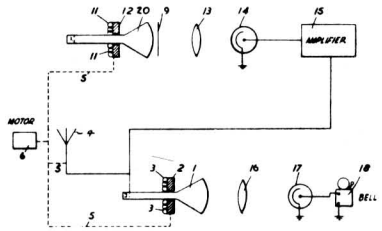


1. An optical system for a color television camera having a video signal-producing tube for each of a plurality of component colors of an object comprising, a relatively short focal length objective lens located between said object and the reign of said tubes, color-selective apparatus including a dichroic reflector located between said objective lens and said tubes, said dichroic reflector being mounted at an oblique angle to the light path from said objective lens and comprising two equal thickness transparent plates supporting between them a color-selective reflecting film, thereby being of such a character that the astigmatism produced thereby is equalized for both the transmitted and reflected light, image relaying apparatus comprising two similar lens systems located in said light path between said objective and said color-selective apparatus and operating to effectively transfer the focal plane of said objective lens to said signal-producing

tubes, a field lens located adjacent to said objective lens in said light path between said objective lens and said image relaying apparatus and operating to direct without appreciable loss substantially all of the light transmitted by said objective lens to said image relaying apparatus, and an astigmatism corrector comprising a plate similar in overall structure and characteristics to said dichroic reflector supporting plates and being located in said light path between said objective lens and said color-selective apparatus, said corrector plate being mounted at substantially the same oblique angle as said dichroic reflector but axially rotated 90° relative to said dichroic reflector.

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

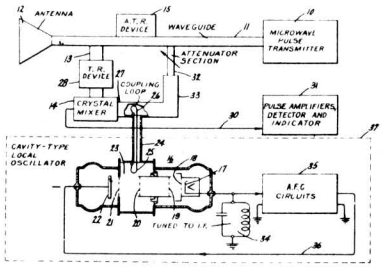
2,667,634
MOVING TARGET INDICATION APPARATUS
Geoffrey Walter Hart, Stoke Poges, England, assignor to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
Application November 10, 1948, Serial No. 59,309
Claims priority, application Great Britain November 15, 1947
2 Claims. (Cl. 343—7.7)



1. Radiolocation apparatus incorporating an angularly movable antenna for receiving signals reflected from objects in the field explored by said antenna, a first cathode ray tube, means for deflecting the beam of said tube to scan the screen of said tube, means responsive to said signals for modulating said beam to provide a display representing the positions of said objects, a second cathode ray tube, means for deflecting the beam of said second tube in synchronism with the beam of said first tube to produce a moving light spot on the screen of said second tube, a material representation indicating selected objects only in said field and disposed to be scanned by said light spot, a photoelectric device disposed for exposure to light from said material representation to generate signals corresponding to said selected objects, and means responsive to said last-mentioned signals for varying the amplitude of signals corresponding to said selected objects received by said antenna to differentiate in said display representations of said selected objects from representations of other objects.

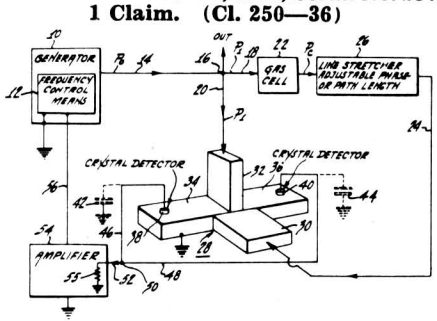
2,667,636
AUTOMATIC FREQUENCY CONTROL CIRCUITS FOR SUPERHETERODYNE MICROWAVE RECEIVERS
Oliver H. Winn, Baldwinsville, N. Y., assignor to General Electric Company, a corporation of New York
Application February 2, 1951, Serial No. 209,154
3 Claims. (Cl. 343—17.1)

3. In a microwave pulse radar system including a pulse transmitter and a superheterodyne pulse receiver, a local oscillator for said receiver of



the reflex klystron type including a cathode electrode, a single resonant cavity and a reflector electrode, means for coupling a small amount of microwave voltage directly from said transmitter into said cavity, a tuned circuit resonant at a desired intermediate frequency connected in circuit with one of said electrodes, an automatic frequency control circuit energized from voltage appearing across said tuned circuit for producing a unidirectional control voltage, and means for impressing said control voltage on said reflector electrode in a sense tending to stabilize said oscillator frequency so as to maintain the difference between the transmitter and oscillator frequencies equal to said desired frequency.

2,672,557
MICROWAVE FREQUENCY CONTROL
Lowell E. Norton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 19, 1951, Serial No. 257,109
1 Claim. (Cl. 250—36)



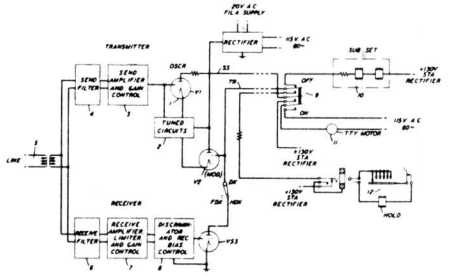
A frequency stabilization system comprising a microwave frequency generator having a frequency control means responsive to a control effect, an energy absorbent gas cell connected to receive a portion of the microwave energy generated by said generator, a line stretcher, a single hollow pipe waveguide magic T having two pairs of arms of the type wherein each arm is decoupled for energy incident on the magic T

from the other arm of the same pair, one arm of one said pair being connected to receive microwave energy after passage of said energy through said cell and through said line stretcher and the other arm of said one pair being connected to receive a portion of energy from said generator without passage through said gas cell, a pair of detectors one connected respectively to detect energy in each of the arms of the other pair of arms of said magic T, means connecting the said detectors to each other in opposition to provide a frequency control effect, and means coupling said frequency control means to said detectors to receive said frequency control effect, whereby the frequency of said generator is stabilized substantially at a resonant frequency of the gas of said gas cell.

II-D. Telegraphy

2,667,536
CARRIER TELEGRAPH SYSTEM
Leland A. Gardner and John L. Hysko, Summit, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application August 7, 1951, Serial No. 240,628
10 Claims. (Cl. 178—66)

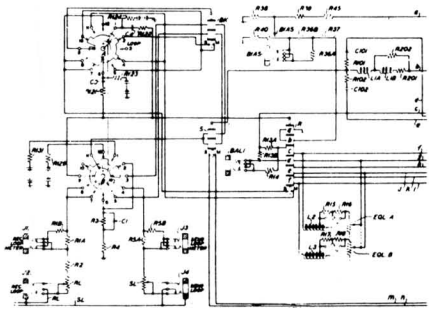
1. A carrier wave telegraph system comprising a carrier oscillator adapted to generate two discrete frequencies for marking and spacing signals respectively, a frequency determining circuit connected thereto comprising a tuned circuit, an auxiliary reactance, and a bridge of varistors therebetween, and direct-current polar telegraph signals for biasing said varistors from a substantially infinite impedance to a low value to uncouple and couple said auxiliary reactance from said tuned circuit, a supervisory circuit con-



nected to said oscillator and adapted to energize and deenergize it to provide supervisory pulses, a transmission line connected to said oscillator for transmitting said discrete frequencies and supervisory pulses.

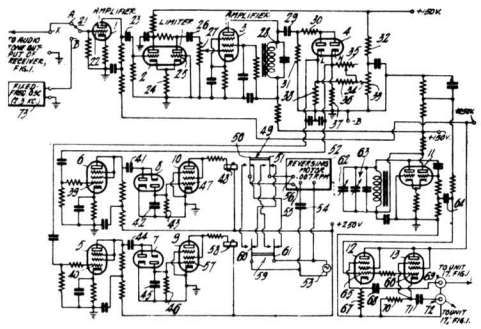
2,667,537
TELEGRAPH REPEATER
Joseph A. Mahoney, New York, and Wilton T. Rea, Manhasset, N. Y., and Carleton B. Sutliff, Summit, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application July 6, 1951, Serial No. 235,458
11 Claims. (Cl. 178—70)

1. In a telegraph repeater, a polar telegraph relay, a line winding thereon connected to a transmission line, a balancing winding on said relay, a first adjustable resistance branch connected between said balancing winding and ground, a second adjustable branch connected between said balancing winding and ground, said branches in parallel, said first resistance branch adjustable for balancing the line with respect to direct current, said second adjustable branch



adjustable for balancing the line with respect to transient currents, said second branch comprising a variable resistance in series with a variable capacitance.

2,667,579
FREQUENCY CONTROL SYSTEM
John B. Atwood, Riverhead, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application October 6, 1949, Serial No. 119,971
12 Claims. (Cl. 250—36)



1. A frequency control system for an oscillator, comprising a single tuned circuit responsive to an alternating input wave for producing therefrom an alternating voltage the amplitude of which varies with the frequency of said wave, means coupled to said tuned circuit and responsive to frequency-dependent produced alternating voltages of peak amplitude above a first threshold value for deriving therefrom a first potential, means coupled to said tuned circuit and responsive to frequency-dependent produced alternating voltages of peak amplitude above a second threshold value for deriving therefrom a second potential, a motor for driving a frequency-

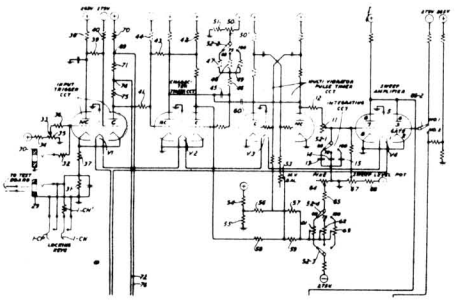
determining element in the oscillator to be controlled, and means controlled by said first and second potentials to complete an energizing circuit of one relative polarity for said motor in response to the presence of both such potentials, to complete an energizing circuit of the opposite relative polarity for said motor in response to the absence of both such potentials, and to disconnect the motor from its source of energy in response to the presence of one such potential and the absence of the other such potential.

2,668,192

TELEGRAPH SIGNAL DISTORTION INDICATING AND MEASURING DEVICE

Samuel I. Cory, Towaco, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application April 2, 1952, Serial No. 280,102
7 Claims. (Cl. 178—69)



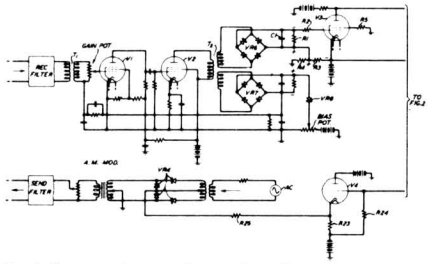
1. A device for displaying along an axis of the screen of a cathode ray tube luminous manifestations to indicate and measure bias, end distortion and peak distortion of telegraph signals comprising a source of start-stop permutation code signals, a cathode ray tube, an input circuit for receiving signals from said source, a signal timer circuit operative in response to the start element of a signal applied to said input circuit to maintain itself in a fixed operated condition for a predetermined duration, a pulse timer circuit for timing the elements of a start-stop permutation code signal and means connected therewith responsive to the operation of said signal timer circuit for producing for each of said signals from said source a uniform triangular-shaped wave having cycles corresponding in number to the elements in a signal from said source, circuit means for impressing said triangular-shaped wave voltages on the horizontal deflection plates of said cathode ray tube to produce a cathodic beam sweep traveling to and fro for each cycle at a uniform rate across an axis of said tube, and a differentiating circuit path responsive to a portion of the output voltage of said input circuit for causing a momentary vertical deflection in said cathodic beam sweep to produce a momentary "pip" of light in conjunction with the sweep whereby any displacement of an incoming signal transition from its correct position is indicated.

2,672,511

TELEGRAPH REPEATER

James R. Davey, Franklin Township, Somerset County, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application May 31, 1951, Serial No. 229,078
5 Claims. (Cl. 178—73)



2. A telegraph system having a carrier receiving branch connected to a direct-current telegraph hub, a carrier sending branch connected to said hub and an electronic coupling circuit interconnecting said sending branch and said receiving branch to control the transmission of signals through said sending branch responsive to signals impressed on said receiving branch and on said hub.

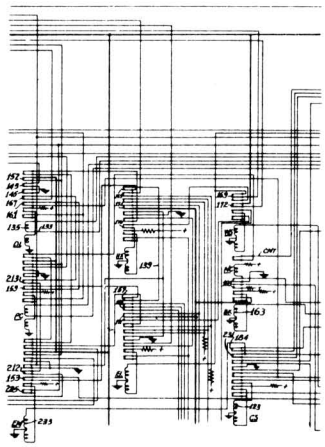
2,673,236

SIGNALING CODE CONVERTER

James Curtis Phelps, Woodcliff Lake, N. J., Dominick Mandato, Jr., Yonkers, N. Y., and James Albert Spencer, deceased, late of Teaneck, N. J., by Antonia R. Spencer, administratrix, Teaneck, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application December 19, 1951, Serial No. 262,458
10 Claims. (Cl. 178—2)

1. A printing telegraph system arranged for producing outgoing signals in a desired operational code in response to signals established in a given operational code, including a tape reader incorporating tape advancing means, a relay inspection circuit having the input thereof coupled to said tape reader and a plurality of outputs, a bank of signal element storage relays coupled to one of said outputs to establish code signal elements therein corresponding to the signal elements established by said tape reader, a transmitting distributor having an output connection coupled to said relay storage bank for transmitting signal elements established therein and local connections generating sequentially occurring pulses for actuating said system in proper time phase, a tape reader locking magnet arranged when energized to lock said tape reader in a spacing condition, a plurality of character conversion control relays coupled to others of said outputs individually responsive to predetermined characters as expressed in said given code, a plurality of special character relays having contact structures coupled to relays of said relay storage bank, switching means connecting selected ones of said special character relays to the proper character conversion relays to blank signal elements established in said relay storage bank and insert signal elements expressing the character under consideration in said desired code under control of said transmitting distributor, a plurality of function insertion control relays coupled to further ones of said outputs individually responsive to predetermined characters and sequence of characters as expressed in said given code, and a group of cascade connected relays having contact structures coupled to said storage relays and operate windings coupled to said function insertion control relays to insert char-

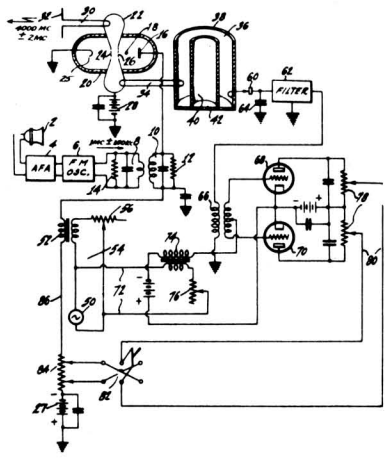


acters in said desired code in said relay storage bank to produce special function signals at said output connection, character count registering means, other switching means coupled to said count registering means to energize said locking magnet and to interconnect said relay storage bank and said group of cascade connected relays, said switching means incorporating means selectively to interpose at least one of said special character relays in said circuit upon the establishment of a predetermined character by said tape reader, a plurality of interconnected system control relays and control switches arranged in conjunction with said local connections and intercoupled with said special character and special function control relays, said group of cascade connected relays and said tape advancing means to limit operation of said system to one operating cycle for each manipulation of one of said control switches for selectively inserting and deleting special character and special function signals at said output connection.

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

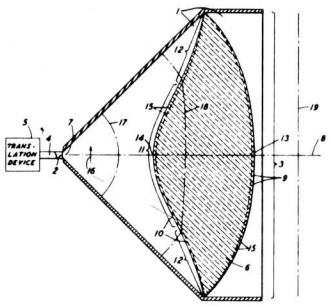
2,668,232
FREQUENCY CONTROLLING SYSTEM
Harry Tunick, Rye, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application May 15, 1945, Serial No. 593,956
3 Claims. (Cl. 250—17)

2. A frequency controlling system comprising, in combination, a microwave oscillator having a reflector electrode, the frequency of the generated oscillations being variable in accordance with the potential impressed on said electrode, a resonant cavity tuned to a predetermined desired ultra-high frequency of operation of said oscillator, means for supplying oscillations from said oscillator through said cavity, a source of relatively low frequency control voltage waves, means for impressing said control waves on said electrode, thereby to frequency-modulate said oscillations, the amplitude of said control waves being sufficient to vary the frequency of said oscillations over a range extending on either side of said desired frequency, means to detect resultant



amplitude modulation waves in the envelope of said oscillations after transmission through said cavity, means to combine said control waves and said modulation waves and to derive a unidirectional potential therefrom, said potential having polarity and magnitude dependent upon deviations in the mean frequency of said oscillations from said predetermined frequency, and means additionally to impress said potential on said electrode in a sense tending to maintain the mean frequency of said oscillations at said predetermined frequency.

2,669,657
ELECTROMAGNETIC LENS
Cassius C. Cutler, Gillette, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 19, 1949, Serial No. 128,338
2 Claims. (Cl. 250—33.63)



1. A dielectric lens for use within the mouth aperture of a high frequency, electromagnetic wave, waveguide, sectoral horn, said lens being assembled within said horn mouth aperture and having a line focus in the throat aperture of said horn and a longitudinal axis coincident with the longitudinal axis of said horn and perpendicularly bisecting said focal line, said axes being situated on the median plane parallel to

and midway between the parallel sides of said sectoral horn, said lens converting high frequency electromagnetic wave energy, radiated into said horn at said throat aperture, into a plane wavefront wave at the mouth aperture of said horn, the maximum thickness of the lens, from its surface nearer said focal line to its surface more remote from said focal line, measured along the longitudinal axis of said lens, being

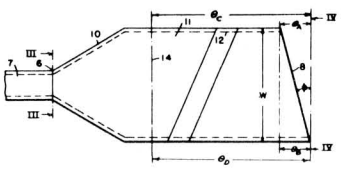
$$t_0=\frac{d_2-d_1}{n-1}$$

where d_1 is the shortest path from the focal line through the lens to the plane wavefront at the far side of the lens, d_2 is the longest path in said median plane from the focal line through the lens to the plane wavefront at the far side of the lens and n is the ratio of the phase velocity of said energy in the horn to the phase velocity in the lens, the curvature about the vertex of the nearer surface of the lens being not greater than $d_3(n-1)$, where d_3 is the difference between the parameters d_1 and t_0 as defined above, and n is the ratio defined above, the contour of the surface of the lens nearer said focal line in said median plane being defined by the quadratic $r_1=a+b\theta_1^2+c\theta_1^4$, where r_1 is the distance in said median plane from the focal line to a particular point selected on said nearer surface intermediate said shortest and said longest paths, θ_1 is the angle between the longitudinal axis of the lens and the line joining said focal line and the selected point, and a, b and c are constants obtained by solutions of the said quadratic for the three energy paths from said focal line to said plane wavefront as described above, the X and Y coordinates in said median plane of any point on the said far surface of said lens being defined, with respect to an origin at the intersection of the focal line and the longitudinal axis of the lens, by the equations $X=r_1\cos\theta_1+r_2\cos\theta_2$ and $Y=r_1\sin\theta_1+r_2\sin\theta_2$ where r_1 and θ_1 are as defined above, r_2 is the path in the lens followed by energy passing through point X, Y, and is defined by the equation

$$r_2=\frac{d_2-d_1-r_1(1-\cos\theta_1)}{n-\cos\theta_2}$$

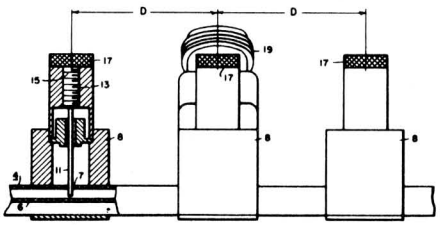
and θ_2 is the angle of r_2 with respect to the longitudinal axis of the lens, the parameters d_1, d_2, n, r_1, and θ_1, being as defined above.

2,669,658
PHASE CORRECTION OF ASYMMETRIC DUAL FEED HORNS
Hagan L. Jackson, Baltimore, Md., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application July 2, 1951, Serial No. 234,701
9 Claims. (Cl. 250—33.63)



2. A hollow conductor for electromagnetic oscillations having a rectangular cross-section, said conductor having a flared out portion in one of the sides thereof, said flared out portion extending across said one side at an acute angle to the axis of said conductor.

2,669,694
MODULATOR
Clyde E. Vogeley, Jr., Pittsburgh, Pa., and William L. Stahl, Ypsilanti, Mich., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application April 28, 1951, Serial No. 223,494
7 Claims. (Cl. 332—52)

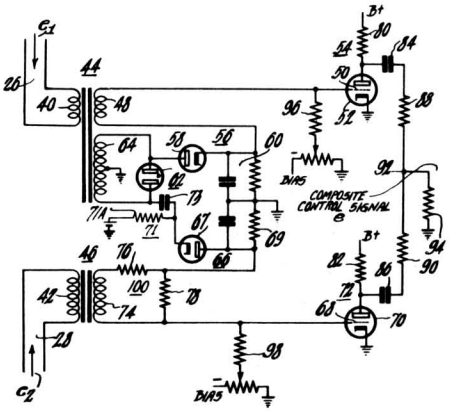


1. In combination a waveguide, three probes attached to said waveguide in such a manner that they may be caused to extend into said waveguide a variable distance, said probes being located so as to interrupt different cross sectional areas along the length of said waveguide, and connections for effectively changing the impedance of that probe which is so located as to intercept a cross sectional area between the cross sectional areas intercepted by the other two probes.

2. A hollow conductor for electromagnetic oscillations having substantially a rectangular cross section with a re-entrant portion extending into said conductor and extending along said conductor parallel to the direction of propagation of energy in said conductor, three probes mounted on said conductor at different positions along the length of said conductor, said probes being mounted so that they may be caused to extend into said conductor a variable distance, said probes extending into said conductor through holes in the wall of said conductor opposite said re-entrant portion, and means for varying the impedance which one of the probes presents to the oscillations.

2,670,456
SWITCHING SYSTEM FOR DUAL-SPEED ELECTRIC SERVO MECHANISM
Arthur F. Naylor, Haddonfield, and Arnold M. Spielberg, Camden, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application June 30, 1950, Serial No. 171,442
11 Claims. (Cl. 318—30)

1. A dual speed servo mechanism system for bringing an object into positional corespondence with a control element comprising means to derive a first error signal dependent on the displacement of said object from a position of correspondence with said element, means to derive a second high speed error signal of greater positional correspondence periodicity than said first signal, means to combine said signals continuously into a control signal comprising separate first and second amplifiers respectively for said first and second error signals, means to con-



trol the respective gains of the two amplifiers the one with respect to the other dependent upon the displacement of said object, said gain control means comprising two circuits each having a rectifying means distinct from said amplifiers and each connected to receive said first error signal and each having a gain control voltage due to rectification by said rectifying means responsive to said first error voltage, one said circuit being connected to apply its gain control voltage to said first amplifier to increase the gain thereof with increase of amplitude of said first error signal, the other said circuit being connected to apply its gain control voltage to said second amplifier to decrease the gain thereof with increase of amplitude of said first error signal, and means to combine continuously the outputs of said amplifiers to provide a control signal, and a motor electrically connected to receive said control signal and mechanically connected to said object and responsive to said control signal to drive said object toward positional correspondence with said control element.

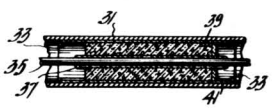
2,670,462

SPONGE GLASS SEAL FOR WAVE GUIDES

Ernest G. Linder, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 28, 1949, Serial No. 96,091

13 Claims. (Cl. 333—96)



1. A high frequency transmission system including a conductive metallic structure a portion of which defines a passage positioned in the system to permit the transfer of electromagnetic energy from one part of the system to another through the structure, and an electromagnetic energy permeable sponge glass insulator located in said passage and bonded to said portion in gas-tight relation to seal said passage without preventing said transfer of energy, said insulator being formed to have a sponge-like structure in which the ratio of the volume of solid material to that of interstitial space has a value between .01 and .1 for which the insulator has a dielectric constant close to unity.

2,671,132

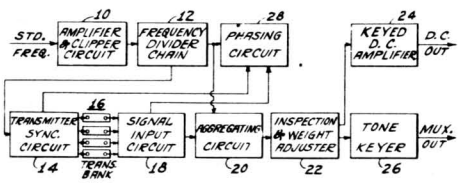
ELECTRONIC MULTIPLEX TRANSMITTER

Eugene Richard Shenk, Fairlawn, N. J., and Anthony Liguori, New York, and Arthur Eugene Canfora, Brooklyn, N. Y., assignors to Radio Corporation of America, a corporation of Delaware

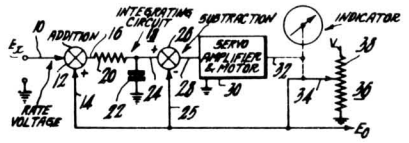
Application February 16, 1951, Serial No. 211,272

17 Claims. (Cl. 178—50)

1. An electronic circuit arrangement for aggregating unit signal elements into a single train of aggregate signal elements including a wave generator for generating a plurality of electric waves harmonically related to the aggregate signal element rate, a plurality of synchronizing multivibrator circuits coupled to said wave generator to be triggered at signal character rate, each of said multivibrator circuits having time constants individually variable to render restoration of said multivibrator circuits in succession at a desired rate to generate start pulses, a plurality of signal input circuits, means to couple sources of said unit signal elements individually to said multivibrator and said signal input circuits, a plurality of controlled electron path devices having output electrodes connected in common and signal input electrodes individually coupled to said signal input circuits, said signal input circuits being coupled to said wave generator to apply said plurality of electric waves to said signal input electrodes in permutations at which but one of said controlled electron path devices is rendered conducting at any given time, an output signal regenerator circuit coupled to the output electrodes of said plurality of controlled electron path devices and comprising a bistable multivibrator arranged to be triggered oppositely on application of signal elements of opposite nature and a monostable multivibrator interposed in said circuit and having a time constant variable to vary the time duration of signal elements of one nature thereby to vary the weight of the output signal elements, a phase indicating circuit including a further multivibrator having one section thereof selectively coupled to one of said synchronizing multivibrator circuits and the other section coupled to the one signal input circuit corresponding to said one synchronizing multivibrator circuit, a mixer circuit coupled to said wave generator to obtain one of said harmonically related waves therefrom and to said further multivibrator to receive a pulse therefrom in response to receipt of a start pulse in said one input circuit, and a current-responsive indicating device coupled to said mixer circuit, said current responsive device being arranged to indicate when said received pulse occurs within the duration of one cycle of said obtained wave, said wave being selected from said harmonically related waves to indicate proper phasing.

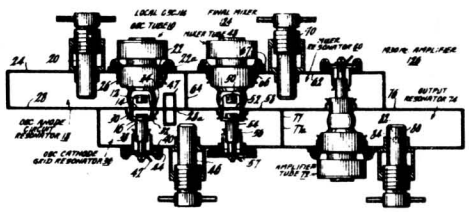


2,671,610
SERVO MECHANISM INTEGRATOR
John H. Sweer, Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application December 18, 1951, Serial No. 262,298
10 Claims. (Cl. 235—61)



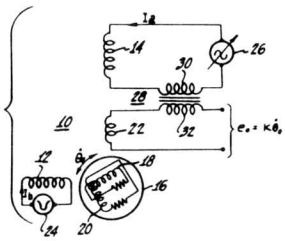
1. In apparatus having a servo-mechanism and a load driven thereby, the method of deriving an output voltage which is the integral of an input voltage, comprising the steps of adding the output voltage to the input voltage, integrating the sum, subtracting the output voltage from the said integrated sum, employing the difference voltage as an error voltage to control the servo mechanism and the position of its load, and deriving as the output voltage a voltage proportional to the servo mechanism load position, whereby said output voltage is the integral of the input voltage.

2,671,870
CAVITY RESONATOR CIRCUIT
Norman C. Colby, Mount Holly, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 1, 1951, Serial No. 229,507
11 Claims. (Cl. 315—6)



10. A cavity resonator circuit comprising three cavity resonators each having a pair of opposed walls with respect to which the electric vector is normal in its operating mode and each having a central axis normal to said broad walls, said axes being displaced from each other, the first of said resonators having one of said opposed walls with a fractional portion less than the whole thereof in common with a fractional portion of one of said opposed walls of the second resonator, said one wall of said second resonator having a second fractional portion in common with one of said opposed walls of the third said resonator, a first tube having electrodes coupled respectively to the said opposed walls of said first and second resonators where said first and second resonators have their common wall portion, and a second tube having electrodes coupled respectively to the said opposed walls of said second and third resonators where said second and third resonators have their common wall portion, whereby said first tube couples said first and second resonators, said second resonator couples said tubes, and said second tube couples said second and third resonators.

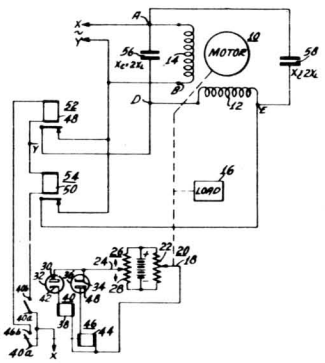
2,671,876
TWO-PHASE MOTOR WITH AN ADDITIONAL SPEED VOLTAGE WINDING
Arnold M. Spielberg, Camden, and Robert E. King, Haddonfield, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application November 29, 1951, Serial No. 258,882
14 Claims. (Cl. 318—29)



1. In an electric motor having a plurality of differently phased stator windings having a rotor relatively rotatable with respect thereto, an auxiliary stator winding inductively coupled to one of said stator windings and to said rotor, and additional coupling means coupling said inductively coupled stator and auxiliary windings for neutralizing a voltage induced in said auxiliary winding by said stator coupling whereby a voltage developed by said auxiliary winding in response to motor rotation is proportional to the angular velocity of said rotor.

2,671,877
TWO-PHASE MOTOR CONTROL
Gilbert Henry Stewart, Jr., Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 20, 1952, Serial No. 315,803
15 Claims. (Cl. 318—29)

9. A servo system comprising a first control element, a second element to be driven into positional correspondence with said first element, means to derive a voltage having a sense responsive to the sense of the lack of positional correspondence of said elements, a pair of normally closed serially connected switches, means selectively actuated in response to said voltage sense to selectively open one or the other of said switches, a two-phase motor mechanically connected to drive said second element and having a pair of windings to which power is to be applied from an A. C. source at a definite operating frequency, a pair of serially connected equal value capacitors connected in parallel with one of said windings, said serially connected switch means



also being connected in parallel with said one winding, the other said winding being connected between the junction between said capacitors and the junction between said switch means, and means to apply voltage from said source between said junctions, each said capacitor having a reactance at the operating frequency twice that of said other winding, whereby on actuation of one of said switch means in response to lack of positional correspondence of said elements, said second element may be driven by said motor toward positional correspondence with said control element, and on nonactuation of said switch means, said one winding is short-circuited to afford dynamic braking of said motor.

2,673,251

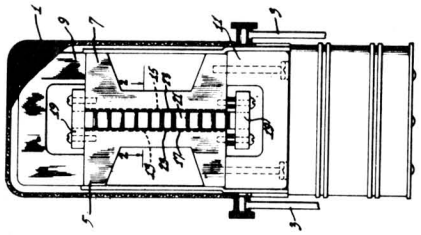
MEANS FOR PREVENTING INFILTRATION OF MAGNETIC DIRT PARTICLES INTO THE AIR GAP BETWEEN POLES OF MICROPHONE MAGNETIC STRUCTURES

Robert K. Duncan, Mount Ephraim, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application June 26, 1948, Serial No. 35,352

1 Claim. (Cl. 179—115.5)

In a microphone, a vibratile member, a magnet structure comprising a pair of elongated pole pieces having pole faces disposed in spaced parallel relation to each other and providing an air gap therebetween for cooperation with said vibratile member, means to support said vibratile member for movement in said air gap in response to sound waves impinging thereon, magnet means connected to said pole pieces providing a magnetic field across said air gap, said vibratile member being disposed in closely spaced relation to said pole faces, a plurality of spaced ridges extending from each pole piece face along each side of said air gap for decreasing the reluctance of the magnetic path between the pole faces along the outer edges of said pole faces, said decrease in reluctance being substantially independent of the reluctance in said air gap cooperating with said vibratile member, said decrease in reluctance providing that magnetic particles tending to enter said air gap and obstruct vibratory movement of said member are subject to an outer zone of increased magnetic strength



where they will be collected along said outer edges and prevented substantially from entering said air gap.

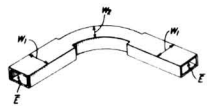
2,673,962

MODE SUPPRESSION IN CURVED WAVE-GUIDE BENDS

Winston E. Kock, Basking Ridge, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application January 18, 1949, Serial No. 71,419

15 Claims. (Cl. 333—81)



1. In combination, a wave guide, and means to excite electromagnetic waves in said guide for transmission therethrough in a first mode, said guide comprising a pair of substantially straight portions of uniform cross section joined by a curved portion that tends to generate a second transmission mode, the said waves occupying a frequency range that includes the transmission cut-off frequency of said straight portions for said second mode; and said curved portion having a different cross-sectional construction than said straight portions, having a cut-off frequency for said second mode that is at least as high as said first-mentioned cut-off frequency, and having a cut-off frequency for said first mode below the frequency of the electromagnetic waves excited in said guide.

SECTION III. CIRCUITS OF GENERAL APPLICATION

III-A. Amplifiers

2,666,815

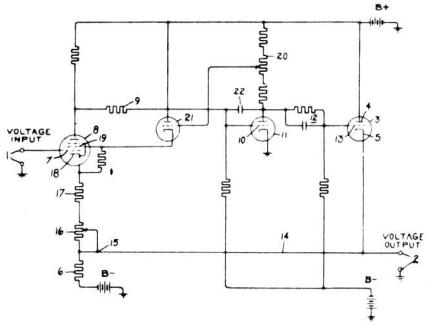
CATHODE-FOLLOWER IMPEDANCE MATCHING DEVICE

William T. Chapin, Baldwinsville, N. Y., assignor to General Electric Company, a corporation of New York

Application March 1, 1950, Serial No. 147,052

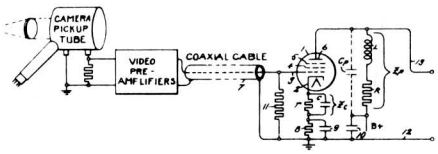
2 Claims. (Cl. 179—171)

2. An arrangement for supplying a signal, variable over a range of intensities, from a high impedance source to a low impedance load comprising a first electron discharge device, a plurality of input circuits for said device, a cathode load impedance and an anode load impedance, means applying said signal to one of said input circuits, a source of unidirectional voltage, said load impedances coupling the electron discharge path of said device across said voltage source, a second electron discharge device comprising an input circuit, means coupling the electron discharge path of said second device through a portion of



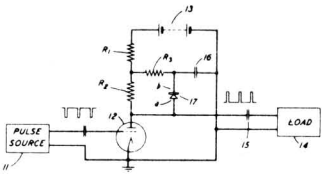
said cathode impedance across said voltage source, signal coupling means coupled between said anode load impedance and the input circuit of said second device, amplifier means including a portion of said signal coupling means and coupled between said anode load impedance and another input circuit of said first device for feeding back a signal to said other input circuit of said first device to compensate for reduction in effectiveness of said input signal due to electron discharge current flow through said cathode impedance to an extent to cause said current flow to vary in correspondence with said signal, and means for coupling said low impedance load between an intermediate point of said cathode impedance and an intermediate potential point of said source of unidirectional voltage.

2,668,883
AMPLIFIER FOR ATTENUATING THE HIGHER FREQUENCY COMPONENTS OF SIGNALS
Winslow L. Hurford, North Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application June 10, 1950, Serial No. 167,441
7 Claims. (Cl. 179—171)



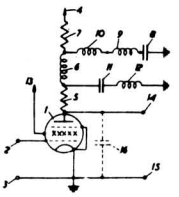
1. An amplifier comprising an electron discharge device having an anode, a grid, and a cathode, an impedance comprising a parallel combination of resistance and capacitance connected between said cathode and a point of reference potential, an input circuit connected between said grid and cathode through said impedance, means for biasing said grid with respect to said cathode, another impedance including an inductance and resistance in series and having one end thereof connected to said anode, a source of direct voltage having its negative terminal connected to said point of reference potential and its positive terminal connected to said other end of said series combination, said second resistance and inductance have such values with respect to the capacitance between said anode and said point of reference potential and with respect to said first resistance and first capacitance that when a signal voltage having a range of frequencies is applied to said input circuit the voltage between said anode and said point of reference potential increases with increase in frequency over said range and the phase of said latter voltage with respect to the phase of said signal voltage is substantially constant throughout said range.

2,669,654
LIMITER AMPLIFIER CIRCUIT
John B. Maggio, Summit, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application June 27, 1950, Serial No. 170,598
2 Claims. (Cl. 250—27)



1. The combination with a source of signals to be amplified of an output-limited amplifier comprising a space discharge device having a plate, a grid, and a cathode, means for applying said signals between said grid and said cathode, a source of plate current, a resistance voltage divider, means connecting said voltage divider in a plate-cathode circuit with said source between said source and said plate, an output circuit connected to the junction of said resistance voltage divider and said plate, a circuit including a resistor and a capacitor connected between a tap on said voltage divider and said cathode, a two-terminal asymmetrically conducting impedance element, means connecting one terminal of said impedance element to the junction of said plate and said resistance voltage divider and means connecting the other terminal of said impedance element to the junction of said resistor and said capacitor, and said asymmetrically conducting impedance element poled to receive a reverse bias from said voltage divider in the absence of signals from said signal source.

2,673,253
THERMIONIC VALVE AMPLIFIER
Ivanhoe John Penfound James, London, England, assignor to Electric & Musical Industries Limited, Hayes, England, a British company
Application February 9, 1949, Serial No. 75,327
Claims priority, application Great Britain February 14, 1948
1 Claim. (Cl. 179—171)

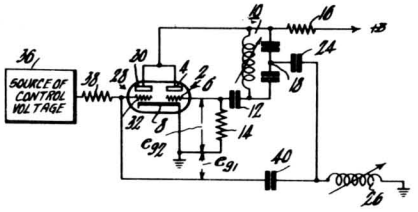


A wideband amplifier circuit including at least one thermionic valve having a cathode electrode, a control electrode, and an output electrode, input connections for applying signals to be amplified between said control electrode and said cathode, an impedance connected at one end to said output electrode, a first alternating current path from the other end of said impedance to ground, said first path including

the series combination of an inductor and a condenser with the condenser connected in said path with one electrode of said condenser grounded, a second alternating current path from said other end of said impedance to ground and including a condenser, means connecting said cathode electrode to ground, a source of positive potential, a conductive impedance connected from said source to a point in said first path intermediate said inductor and said first-mentioned condenser, and output connections for deriving an output of signals set up between said output electrode and ground, said first-mentioned condenser being dimensioned to decouple the potential source from said alternating current circuit from said input electrode to said cathode electrode.

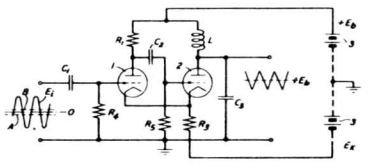
III-B. Oscillators (includes Multivibrators)

2,666,182
FREQUENCY CONTROL APPARATUS
Eugene O. Keizer, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 19, 1950, Serial No. 185,627
5 Claims. (Cl. 332—28)



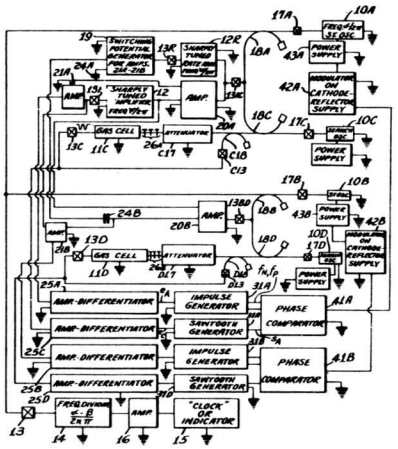
1. An apparatus for controlling the frequency of an oscillator comprising in combination a first amplifier having at least a plate, a grid and a cathode, a resonant circuit connected between said grid and said plate, a first reactive element coupled between said grid and said cathode, a second reactive element coupled between an intermediate point in said resonant circuit and said cathode, a second amplifier having a grid, said second amplifier being connected in parallel with at least a portion of said resonant circuit, means for changing the gain of said second amplifier, and means for applying the voltage across said second reactive element to the grid of said second amplifier.

2,669,656
TRIANGULAR WAVE GENERATOR
Larned A. Meacham, New Providence, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 15, 1951, Serial No. 256,417
10 Claims. (Cl. 250—27)



1. Apparatus for generating a voltage of triangular wave form which comprises a pair of discharge devices intercoupled for operation in one or other of two stable states in one of which the first device conducts while the second is cut off and in the other of which the first device is cut off while the second conducts, a storage condenser connected in shunt with the discharge path of the second device, a constant current element connected in series with a discharge electrode of the second device, and means for applying a signal to trip said pair of devices from either of said stable states to the other of said stable states.

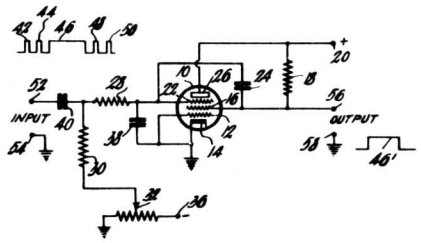
2,669,659
STABILIZED GENERATOR
Lowell E. Norton, Princeton Junction, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application February 13, 1948, Serial No. 8,246
6 Claims. (Cl. 250—36)



1. A system for producing a sub-microwave frequency of high precision which comprises two microwave oscillators, separate gas cells for stabilizing to substantially the same degree the frequency of each of said oscillators, said gas cells each exhibiting molecular resonance at respectively different frequencies whose difference corresponds with said sub-microwave frequency, and means for mixing the outputs of said stabilized oscillators to produce oscillations of said sub-microwave frequency.

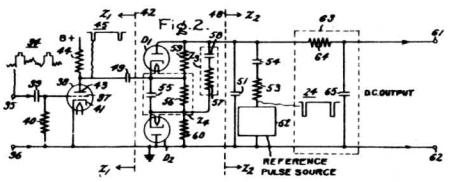
III-C. Miscellaneous

2,666,135
PULSE DISCRIMINATORY CIRCUIT
Loy E. Barton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application May 28, 1948, Serial No. 29,776
4 Claims. (Cl. 250—27)



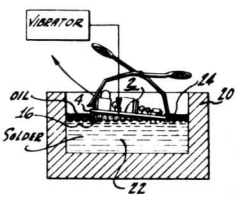
1. In an electric wave discriminatory system the combination of electronic discharge tube having cathode, a control grid, a screen grid, a suppressor grid, and a plate electrode, circuit connections adapting said discharge tube for operation as a negative transconductance amplifier having an input circuit associated with said suppressor grid, and an output circuit associated with said screen grid, means connecting said output circuit in regenerative relationship with said input circuit, means for applying a control potential to said suppressor grid for conditionally inactivating said regenerative amplifier circuit, and an electrical integrating circuit intercollated in said input circuit, said integrating circuit being adapted to respond to a series of electric wave signals whereby said amplifier circuit is rendered regeneratively active by only those wave signals imparting to said integrating circuit an amount of integratable energy in excess of a predetermined magnitude.

2,669,655
BALANCED PHASE DETECTOR
Wolf J. Gruen, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application November 13, 1950, Serial No. 195,211
8 Claims. (Cl. 250—27)



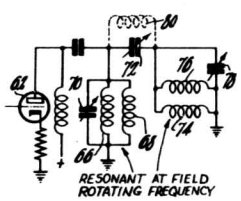
1. A balanced phase detector circuit comprising a four-arm bridge network including a first pair of impedances connected in two diagonally-opposite arms and a pair of rectifiers connected in the remaining two arms, a second pair of impedances connected respectively to diagonal corners of said network, means establishing one corner of said network as a point of reference potential, a first source of alternating voltage of predetermined frequency connected between said reference corner and the diagonally-opposite corner, a second source of alternating voltage of said frequency connected in the impedance arm adjacent said reference corner, and an output terminal connected to a corner of said network at which unidirectional voltages developed across said rectifiers are in opposition with respect to said reference corner, the impedances of said bridge network being balanced so that substantially zero unidirectional voltage is developed at said output terminal in response to either of said alternating voltages alone.

2,671,264
METHOD OF SOLDERING PRINTED CIRCUITS
Leopold Pessel, Whitemarsh Village, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application May 24, 1952, Serial No. 289,768
12 Claims. (Cl. 29—359)



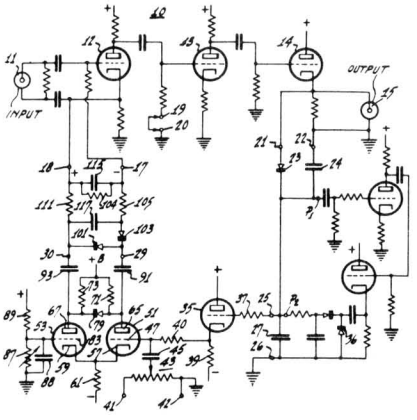
1. A method of dip soldering an assembly comprising a plurality of electrical conductors disposed on a surface of a sheet of insulating material, said conductors being so closely spaced that some solder bridging normally occurs when said assembly is dipped in molten solder, said method comprising immersing said assembly in a bath of molten solder and removing said assembly from said bath whereby said conductors are coated with solder but some of said solder adheres to said insulating material surface between said conductors, then, dipping said assembly in a second bath of molten solder having floating thereon a layer of relatively inert liquid material, agitating said assembly, with said insulating material surface face down, at the interface between said second solder bath and said floating layer until substantially all of said solder adhering to said insulating material surface between said conductors is removed, and removing said assembly from said floating layer.

2,672,576
APPARATUS FOR GENERATING ROTATING MAGNETIC FIELDS
Vernon D. Landon, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 11, 1951, Serial No. 250,841
6 Claims. (Cl. 315—24)



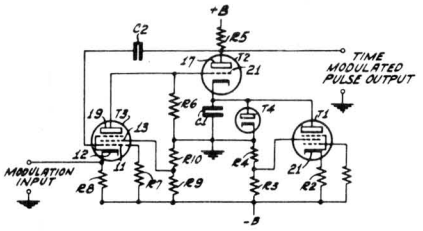
1. Apparatus adapted to generate a rotating magnetic field for use in conjunction with a cathode ray tube comprising in combination a first means for continuously establishing a first magnetic field, a second means for continuously establishing a second magnetic field in the same plane as and at an angle to said first magnetic field, said first and second means being respectively tuned for resonance at the field rotating frequency and critically coupled.

2,673,330
AMPLITUDE MODULATED PULSE TRANSLATING CIRCUITS
Howard Mulder Scott, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application December 23, 1952, Serial No. 327,485
10 Claims. (Cl. 332—9)



1. In a pulse train translating circuit including a pulse train repeater having input and output circuits, means incorporating automatic control of gain, comprising a potential metering circuit coupled to said output circuit to develop a direct potential proportional to the potential of the pulses of said train at said output circuit, a direct current and low frequency amplifier circuit having output terminals producing an alternating potential in response to an alternating voltage wave applied at one set of input terminals and arranged to modulate said wave in amplitude proportional to said direct potential obtained from said metering circuit, and a rectifier circuit coupled to the output terminals of said direct current and low frequency amplifier circuit to produce a direct voltage proportional to the potential of the pulses of said train at said output terminals, and means to apply said direct voltage to the input circuit of said repeater in opposition to the amplitude variations of said pulse train.

2,673,331
LINEAR PERIOD PULSE MODULATOR
Anthony Liguori, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application September 27, 1951, Serial No. 248,493
4 Claims. (Cl. 332—14)



1. A pulse modulation circuit arrangement including an electron discharge device having at least a cathode, a grid and an anode, an electron discharge structure having at least cathode, grid and anode electrodes, a series circuit comprising an output load impedor having a terminal connected to said anode, a storage capacitor having one electrode connected to said cathode, and a resistance element having one terminal connected to the other electrode of said capacitor and the other terminal connected to the anode electrode of said electron discharge structure, a connection between the anode of said structure and the grid of said device, a capacitive coupling element connected between a grid electrode of said structure and the anode of said device, an input load impedor having one terminal connected to the cathode electrode of said electron discharge structure, means to apply operating potential to said series circuit, a resistance element connected between the grid and cathode electrodes of said electron discharge structure, and a constant current device connected across said storage capacitor to charge the same, thereby to produce a train of pulses at said output load impedor spaced apart by time periods proportional to modulating potential applied to said input load impedor.

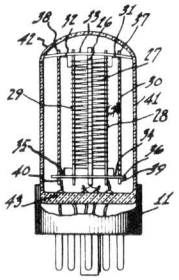
SECTION IV. TUBES

IV-A. Receiving

2,666,866
RUGGEDIZED ELECTRON TUBE
Hans J. Prager, Maplewood, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 13, 1950, Serial No. 167,789
4 Claims. (Cl. 313—258)

4. A ruggedized electron tube including an envelope having a domed end and a mount having one end extending into said domed end, said

mount having at said one end thereof a spacer plate, having relatively obtuse corners and curvatures between said corners engaging said dome, said plate being bodily flexed throughout its extent by a forceful engagement of said domed end by said obtuse corners and curvatures of the plate, said plate having passageways extending therethrough, said mount including electrodes extending axially of said envelope and into said



passageways, whereby said mount is ruggedly supported in said envelope and said passageways are angularly disposed axially with respect to said electrodes for locking said electrodes in said plate.

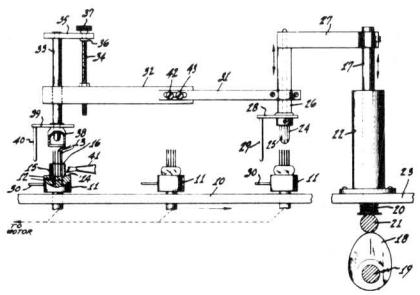
2,671,291

GLASSWORKING APPARATUS AND METHOD

Charles W. Daley, Indianapolis, Ind., assignor to Radio Corporation of America, a corporation of Delaware

Application June 29, 1950, Serial No. 171,065

4 Claims. (Cl. 49—1)



3. Method of working a glass tube adjacent a metal body wherein said tube and body have predetermined registering areas, including the steps of heating said glass tube to render the same semi-plastic while preserving its self-supporting characteristic, compressing said glass tube in a direction parallel to said metal body, whereby said registering areas are reduced, and further heating to a fully plastic state and compressing said glass tube to seal the same to said metal body.

4. In an apparatus for forming a glass tube to flattened shape to provide a flat stem having lead-ins extending therethrough and including means for heating said glass tube; the improvement comprising a processing means having spaced glass forming and wire straightening members, said glass forming member having an annular surface co-extensive with an end surface of said tube and being movable to compress said tube axially after partial heating to a length intermediate the original length of said tube and the thickness of said stem, said straightening member being movable to engage said lead-ins for straightening the same, a support for said glass tube and lead-ins movable successively to said glass forming member and to said wire straightening member, and adjustable connecting means between said glass forming member and said wire straightening member, for causing said wire straightening member to engage portions of said lead-ins exposed by compression of said glass tube.

2,673,387

ELECTRON EMISSION COATING MIXTURES

Gordon M. Forker, Lyndhurst, Ohio, assignor to General Electric Company, a corporation of New York

No Drawing. Application May 18, 1951, Serial No. 227,115

2 Claims. (Cl. 29—25.14)

1. A coating composition for coiled-coil cathodes and consisting essentially of a suspension, in proportions corresponding to the stated amounts, of about 130 to 260 grams of finely divided alkaline earth carbonates in about 115 to 145 ml. of a binder of nitrocellulose dissolved in ethylene glycol monoethyl ether acetate and having a viscosity in the range of about 30 to 100 centipoises.

IV-B. Transmitting

2,666,159

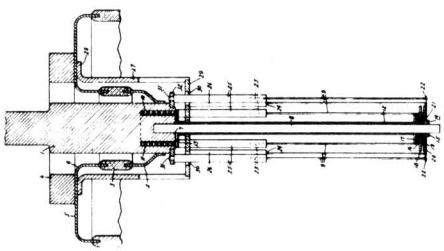
SORPTION TYPE GETTER STRUCTURE

Robert I. Reed, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application August 8, 1951, Serial No. 240,915

5 Claims. (Cl. 313—174)

1. For use in an evacuated electric discharge device, a cathode and gettering structure comprising a first terminal member, a second terminal member insulated from said first terminal

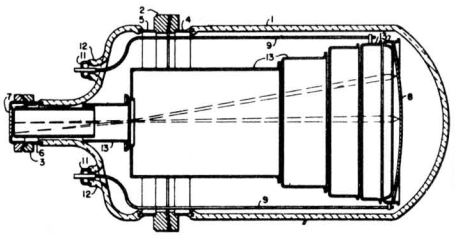


member, a support post mounted at one end thereof on said first terminal member and extending from said first terminal member, an insulating member mounted on the other end of said support post, an annular getter element of a material which readily takes up gases at elevated temperatures mounted transversely on said insulating member, a support plate mounted on said insulating member in spaced relation to said getter element and oriented in a plane transverse to the axis of said post, a plurality of emissive filamentary wires secured at one end of each to the periphery of said support plate, the other ends of a first half of said wires being secured and connected to said first terminal member and the other ends of the remaining half of said wires being secured and connected to said second terminal member, said getter element being located within the array of said filamentary wires.

IV-C. Cathode Ray and Photo-electric

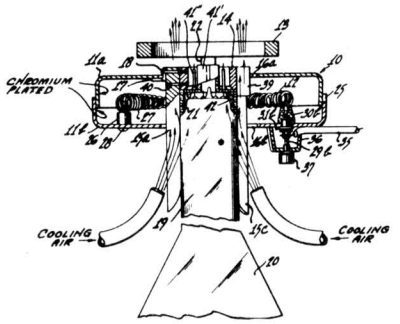
2,666,864
IMAGE INTENSIFIER TUBE
Richard L. Longini, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application January 20, 1950, Serial No. 139,715
15 Claims. (Cl. 313—65)

1. An image intensifier device comprising an evacuated container having at one end a screen which emits light in response to incidence of moving electrons and having at the other end an input screen comprising a support, a first layer comprising a substance which emits light in response to an incident radiation and another layer adjacent thereto which is photoelectrically emissive, and an electron lens system between



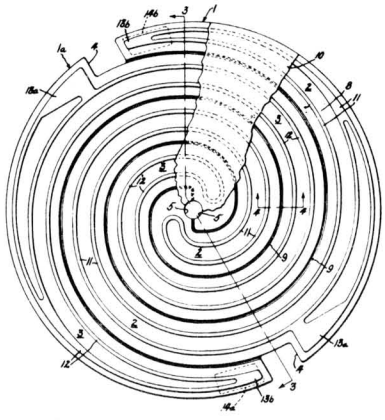
said screens comprising conducting members having surfaces of zinc sulphide.

2,667,205
HEATING UNIT FOR CEMENTING BASES TO ELECTRON TUBES
Morris R. Weingarten, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application February 28, 1951, Serial No. 213,134
9 Claims. (Cl. 154—42)



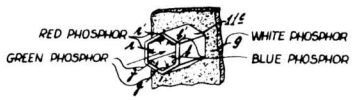
1. A heating unit for cementing together two parts of an electrical device, comprising a housing, heating means inside said housing, holder means on said housing forming a seat for one of said parts, and aligning means adjacent said holder means adapted to guide the other of said parts into contact with said one of said parts when seated in said holder means.

2,668,184
MULTIPLE PHOTOCELL STRUCTURE
Clement F. Taylor, Lynn, Walton E. Briggs, Lynnfield Center, and John F. Weary, Lynnfield, Mass., assignors to General Electric Company, a corporation of New York
Application February 15, 1952, Serial No. 271,746
17 Claims. (Cl. 136—89)



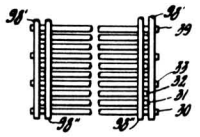
1. A multiple photocell structure comprising two similar spiral-shaped photocells interlinked in a common plane so that spiral portions of one cell lie between spiral portions of the other cell and spaced from each other by gaps of approximately 0.2 inch filled with amorphous selenium which insulates the cells from each other and unites the cells into one mechanical structure, the outer ends of said spiral cells being shaped such that the outline of the complete structure is substantially circular.

2,669,671
FOUR-COLOR KINESCOPE
Lewis B. Headrick, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application October 6, 1951, Serial No. 250,139
5 Claims. (Cl. 313—70)



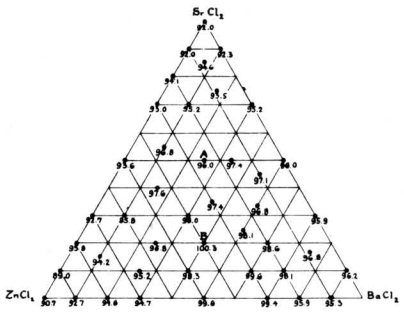
1. A target-assembly for a color-kinescope, said assembly comprising: a foundation plate having a target surface consisting essentially of a phosphor material that exhibits a substantially white color-response characteristic when struck by electrons, in combination with a multiplicity of target elements extending in a direction substantially normal to said white phosphor surface, each of said target elements having a plurality of faces consisting essentially of respectively different phosphor materials that exhibit different color-response characteristics when struck by electrons.

2,669,768
PRODUCTION OF MULTILINEAR SCREENS
Alfred N. Goldsmith, New York, N. Y., assignor to Radio Corporation of America, a corporation of Delaware
Application March 7, 1950, Serial No. 148,245
2 Claims. (Cl. 29—148)



1. In a method of manufacturing a target screen having adjacent lines of materials which fluoresce in different colors, the steps which include coating different groups of thin elements with different materials each of which fluoresces in a different color, assembling the elements in each group in spaced parallel relationship with adjacent elements separated by a distance greater than twice the thickness of each element, fixing cross-wise supports to the elements of each group, cutting said elements adjacent to said supports to form portions of said screen, and then positioning all of said portions in the same plane, with the elements of said different groups interspersed so that each element of each group is adjacent to an element of a different one of said groups.

2,672,451
IMPROVED CADMIUM HALOPHOSPHATE PHOSPHORS
Robert W. Wollentin, Bloomfield, and Rudolph Nagy, Upper Montclair, N. J., assignors to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application February 2, 1951, Serial No. 209,090
13 Claims. (Cl. 252—301.6)



12. A luminescent composition consisting of cadmium orthophosphate, a halide formed by one of the group consisting of chlorine and fluorine and at least one of the group consisting of magnesium, zinc, strontium, and barium, and manganese in activator proportions; having the gram molecular formula:

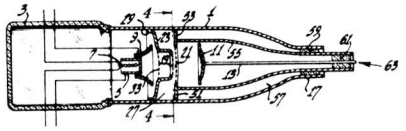
$$3Cd_3(PO_4)_2 \cdot vMgL_2 \cdot wZnL_2 \cdot xSrL_2 \cdot yBaL_2 : zMn$$

where L stands for a halogen of the group consisting of chlorine and fluorine; v is a number lying in the range between and including .05 and 3; w is a number lying in the range not higher than 3; x is a number lying in the range not higher than 5; y is a number lying in the range not higher than 3; z is a number lying in the range between and including 0.01 and 2; where v is zero if x or y is higher than zero; where the proportion of only as many as two of the zinc, strontium and barium components, may be zero; and where the sum of v, w, x and y is a number lying in the range between and including .05 and 5.

IV-D. Klystrons, Magnetrons, etc.

2,667,598
ELECTRON DISCHARGE APPARATUS UTILIZING A CAVITY RESONATOR
Ernest G. Linder, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 30, 1951, Serial No. 259,112
9 Claims. (Cl. 315—5)

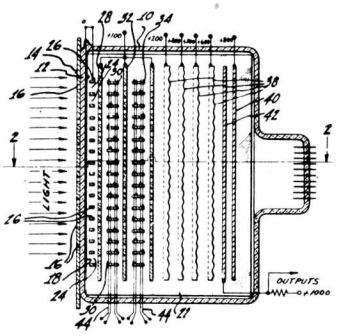
1. Electron discharge apparatus comprising a cathode and an electrode defining a beam path therebetween, an output cavity resonator having a gap surrounding an intemediate portion of said beam path, and an elongated tubular conductor surrounding said electrode and connected at one end to an outer part of said resonator, said resonator being formed with at least one aperture



outwardly of said gap and opening into the space within said conductor and providing restricted electromagnetic coupling between said resonator and said space, said tubular conductor constituting the outer conductor of a coaxial line output terminal for said apparatus.

2,667,599
ELECTRONIC SWITCHING DEVICE
Jan A. Rajchman, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application March 22, 1951, Serial No. 216,959
20 Claims. (Cl. 315—11)

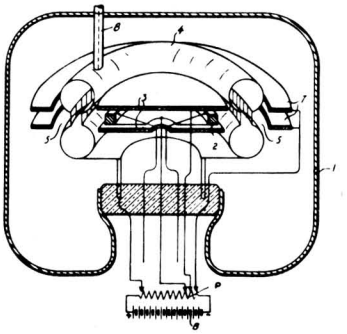
1. A switching tube comprising a translucent tube envelope enclosing a photocathode, a selecting grid adjacent said photocathode, electron multiplying means to multiply electrons passing through said grid and target means at the output of said electron multiplying means to collect elec-



trons emitted from said electron multiplying means.

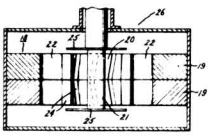
2,668,258
ELECTRON DISCHARGE DEVICE HAVING CAVITY RESONATOR
Leonard Francis Broadway, Ickenham, England, assignor to Electric & Musical Industries Limited, Hayes, England, a company of Great Britain
Application January 11, 1946, Serial No. 640,549
In Great Britain January 14, 1941
Section 1, Public Law 690, August 8, 1946
Patent expires January 14, 1961
4 Claims. (Cl. 315—5)

1. An electric circuit arrangement including an electron discharge device of the velocity-modulation type comprising a cavity resonator of annular form and having openings in opposite walls thereof to form a gap with a zone of constant field intensity, a cathode, said resonator and cathode being concentrically arranged with one of them surrounding the other, means for projecting electrons in a number of directions radially through said zone in the gap whereby said electrons are velocity-modulated, and a reflecting electrode disposed beyond said gap



from said cathode and maintained at a potential to reflect at least some of said electrons back towards said resonator, said resonator being in the form of a concentric transmission line.

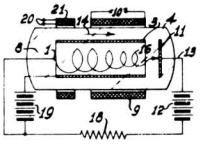
2,668,929
MAGNETRON
Elmer D. McArthur, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application April 3, 1952, Serial No. 280,245
6 Claims. (Cl. 315—40)



1. A magnetron anode structure comprising a plurality of anode segments of given length defining a cylindrical space charge chamber with adjacent edges of adjacent segments defining chevron-shaped interaction gaps.

2,669,609
ELECTRON DISCHARGE DEVICE
Ernest G. Linder, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application October 30, 1948, Serial No. 57,428
8 Claims. (Cl. 179—171)

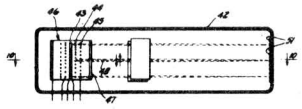
1. An electron discharge device comprising: a concentrated radioactive charged particle emission source, a cylindrical anode, the said source being positioned adjacent said anode, a collector electrode also positioned adjacent said anode and substantially separated from said source, an electric source connected to said collector electrode, an envelope surrounding said emission source, said collector and said anode, a dense ionizable gas confined within said envelope, connections for a source of direct current, connections for a source of varying currents, and a solenoid surrounding and coaxial with said anode, a portion



of said solenoid being connected to said direct current source connections and a portion to said varying currents source connections, whereby the changes in the magnetic field produced by said solenoid correspond in characteristics to said varying currents and a varying magnetic field is impressed on said medium along the axis of said anode.

2,672,573
BEAM SHIFT ELECTRON TUBE
Paul W. Charton, Montclair, N. J., assignor to National Union Radio Corporation, Orange, N. J., a corporation of Delaware
Application March 15, 1951, Serial No. 215,699
17 Claims. (Cl. 315—12)

1. An electron tube, comprising an evacuated

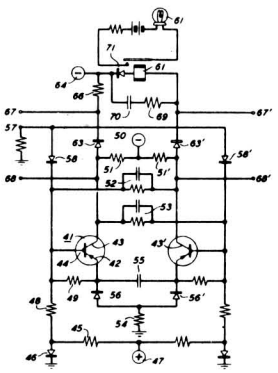


envelope enclosing an elongated electron-emitting cathode, a first variable-mu electrode having a series of openings of progressively different size with the openings disposed along the length of the cathode, a second variable-mu electrode also having a series of openings of progressively different size and extending along the length of the cathode, the said first electrode being mounted with its openings decreasing progressively in size considered from one end of the cathode to the other, and the said second electrode being mounted with its openings increasing progressively in size considered along the opposite direction of the length of said cathode.

SECTION V. TRANSISTORS AND TRANSISTOR CIRCUITS

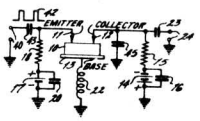
2,665,845
TRANSISTOR TRIGGER CIRCUIT FOR OPERATING RELAYS
Robert L. Trent, Far Hills, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application October 8, 1952, Serial No. 313,762
10 Claims. (Cl. 235—92)

8. An n stage binary counter comprising n tandem connected trigger circuit, each of said trigger circuits comprising a pair of cross-connected transistor trigger circuits; said transistors each having an emitter electrode, a collector electrode and a base electrode, an emitter-base circuit and a collector-base circuit; a relay for each of said n trigger circuits each having a winding connected across the collector electrodes of its associated transistor trigger circuits; an asymmetrically conducting impedance element



connected between each of said collectors and its associated relay winding; a current-responsive indicating circuit and means controlled by the operation of said relays for applying to said indicating circuit a current weighted in accordance with the binary significance of the trigger circuit controlling the application of said current to said indicating circuit.

2,666,139
SEMICONDUCTOR RELAXATION OSCILLATOR
Richard O. Endres, Audubon, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application September 30, 1949, Serial No. 118,905
16 Claims. (Cl. 250—36)

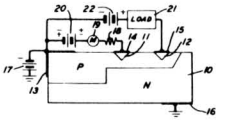


1. A relaxation oscillator including a semi-conductor device having a semi-conducting body, a base electrode, an emitter electrode and a collector electrode in contact with said body, a source of potential, means for applying a forward bias potential between said emitter and base electrodes, a resistor connected between one terminal of said source and said collector electrode, a capacitor connected in shunt with said resistor, and an inductor connected between said base electrode and the other terminal of said source, said source being so poled as to apply a reverse bias potential between said collector and base electrodes.

4. A relaxation oscillator comprising a semiconductor device having a semi-conducting body, a base electrode, an emitter electrode and a collector electrode in contact with said body, a source of potential, a resistor connected between a terminal of said source and said collector electrode, a parallel resonant circuit connected to the other terminal of said source, said parallel resonant circuit being coupled to said base electrode, said source being so poled as to apply a reverse bias potential between said collector and base electrodes, a capacitor connected in parallel with said source and said resistor, said capacitor being charged relatively slowly in one direction by said source through said resistor and being discharged relatively rapidly in the other direction through said device, and means for applying a

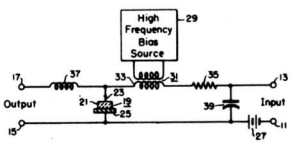
forward bias potential between said emitter and base electrodes, the time constant of said resistor and capacitor being approximately equal to the reciprocal of the resonant frequency of said resonant circuit.

2,666,814
SEMICONDUCTOR TRANSLATING DEVICE
William Shockley, Madison, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application April 27, 1949, Serial No. 89,969
9 Claims. (Cl. 179—171)



1. A signal translating device comprising a body of semiconductive material of one conductivity type having an integral layer on one face thereof, of the opposite conductivity type, said layer being of the order of 0.002 to 0.01 centimeter thick, a pair of spaced zones of said material and of said one conductivity type in the outer face portion only of said layer and terminating short of the inner face of said layer, and electrical connections to said zones and said layer.

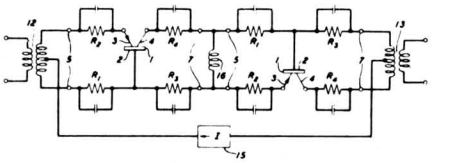
2,666,816
SEMICONDUCTOR AMPLIFIER
Lloyd P. Hunter, Pittsburgh, Pa., assignor to Westinghouse Electric Corporation, East Pittsburgh, Pa., a corporation of Pennsylvania
Application October 20, 1950, Serial No. 191,300
2 Claims. (Cl. 179—171)



1. A semi-conductor amplifier comprising a semi-conductor diode, input terminals, output terminals, means for applying a direct current bias to said diode, means for applying an alternating current bias signal to said diode, of frequency such that a half-period is short compared to the life of an anomalous current carrier, and of frequency substantially higher than that of the signals to be amplified, and means isolating said high frequency bias from said input and output terminals.

2,666,817
TRANSISTOR AMPLIFIER AND POWER SUPPLY THEREFOR
Gordon Raisbeck, Morristown, and Robert Lee Wallace, Jr., Plainfield, N. J., assignors to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 9, 1950, Serial No. 194,834
11 Claims. (Cl. 179—171)

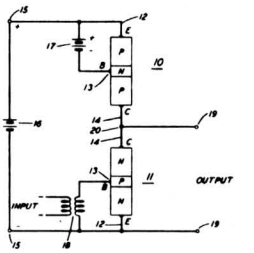
1. An amplifier which comprises a transistor having a base electrode, an emitter, and a collector, input terminals connected to two of said



electrodes, output terminals connected to one of said two electrodes and to the third electrode, a resistor connected in series between each of said terminals and the transistor electrode to which it is connected, a first inductance coil interconnecting said input terminals, a second inductance coil interconnecting said output terminals, a substantially steady bias current source having two terminals, one of said source terminals being connected directly to said first coil and the other of said source terminals being connected directly to said second coil, said several resistors being proportioned, in relation to the self-resistances of the transistor and to the current source resistance, to hold the total current of said source substantially constant and to supply a first desired fraction of said total current as a bias current to the emitter and a second desired fraction thereof as a bias current to the collector.

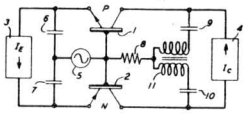
2,666,818
TRANSISTOR AMPLIFIER
William Shockley, Madison, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application September 13, 1951, Serial No. 246,428
8 Claims. (Cl. 179—171)

1. A signal translating device comprising a pair of transistors of opposite conductivity types, each transistor having base, emitter and collector connections, an output circuit connected between two of said connections of one transistor, an input circuit connected between one of said two connections and the third connection of said



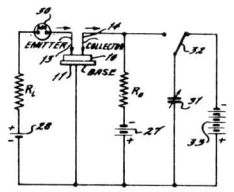
one transistor, a connection between one of said two connections and the like connection of the other transistor, and a biasing source connected between the other of said two connections and the like connection of said other transistor.

2,666,819
BALANCED AMPLIFIER EMPLOYING TRANSISTORS OF COMPLEMENTARY CHARACTERISTICS
Gordon Raisbeck, Morristown, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application September 18, 1951, Serial No. 247,155
4 Claims. (Cl. 179—171)



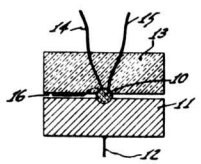
1. Apparatus which comprises a pair of transistors each of which has a first terminal, a second terminal, and a third terminal, like numbered terminals of said transistors being alike in function, one of said transistors being characterized by voltage-current characteristics which are like those of the other transistor in shape but opposite in sign, the first terminals being directly connected together, means for applying a signal to the second terminals in parallel, and means for extracting a translated signal from the third terminals in parallel.

2,666,873
HIGH CURRENT GAIN SEMICONDUCTOR DEVICE
Bernard N. Slade, Morristown, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application April 21, 1950, Serial No. 157,246
18 Claims. (Cl. 317—235)



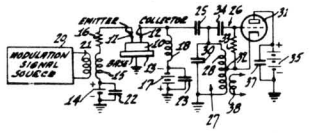
1. A semi-conductor device comprising a semi-conducting body, a base electrode, an emitter electrode, a collector electrode, said electrodes being in contact with said body, said device being electrically treated by passing a short and intense pulse of current in the reverse direction between said collector and base electrodes under a condition of steady current flow in the reverse direction between said collector and base electrodes and in the forward direction between said emitter and base electrodes and with said emitter and collector electrodes spaced from each other no less than 10 mils, whereby the internal feedback of said device becomes negligible and its current gain is increased.

2,666,874
CONSTRUCTION OF SEMICONDUCTOR DEVICES
Loy E. Barton, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application August 25, 1950, Serial No. 181,362
5 Claims. (Cl. 317—235)



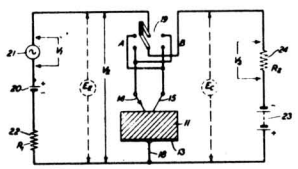
1. A semi-conductor device comprising a semi-conducting body of substantially spherical shape and having a diameter which does not exceed approximately 10 mils in any direction, a member of soft metal in a low-resistance contact with a substantial portion of the surface of said body, a block of insulating material, a pair of wires imbedded in said block, said block having a curved surface along which the ends of said wires are exposed in spaced apart relationship, said curved surface of said block conforming to and contacting another surface portion of said body whereby said wires are caused to make rectifying contact with said body when said surfaces are in contact.

2,666,902
FREQUENCY MODULATOR TRANSISTOR CIRCUITS
Leslie L. Koros, Camden, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application June 30, 1950, Serial No. 171,326
12 Claims. (Cl. 332—29)



1. A circuit for varying the frequency of a tuned circuit 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 for applying operating potentials to said electrodes including a source of potential and an impedance element serially connected between said base and collector electrodes, means for applying a signal effectively between said emitter and base electrodes, a tuned circuit, and means connected serially with the collector-base electrode path of said semi-conductor device for coupling said tuned circuit to said collector electrode, whereby said signal source varies the frequency of said tuned circuit in accordance with said signal.

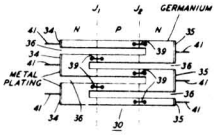
2,666,977
REVERSIBLE SEMICONDUCTOR AND METHOD OF MAKING IT
William G. Pfann, Chatham, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application December 31, 1948, Serial No. 68,596
6 Claims. (Cl. 29—25.3)



1. The method of making a reversible semiconductor amplifier having two spaced restricted area connections and a large area base connection on a semiconductive body, that comprises electrically forming one restricted area connection by passing a relatively high reverse current

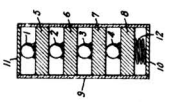
therethrough while both restricted area connections are in circuit with the base connection to condition said one connection as a collector connection and then likewise electrically forming the other restricted area connection as a collector connection.

2,667,607
SEMICONDUCTOR CIRCUIT ELEMENT
Albert L. Robinson, Short Hills, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application April 26, 1952, Serial No. 284,628
10 Claims. (Cl. 317—234)



1. A circuit element comprising a body of semiconductive material having therein a pair of outer zones of one conductivity type on opposite sides of and forming PN junctions with an intermediate zone of the opposite conductivity type, said body having therein a series of slots certain of which extend through one of said pair of zones and across both of the junctions and others of which extend through the other of said pair of zones and across both of said junctions.

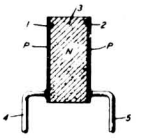
2,668,262
ASYMMETRICALLY CONDUCTIVE DEVICE
William C. Dunlap, Jr., Schenectady, N. Y., assignor to General Electric Company, a corporation of New York
Application September 27, 1950, Serial No. 187,097
3 Claims. (Cl. 317—234)



2. An asymmetrically conductive device comprising a tubular insulating container, a plurality of spherical pellets formed of a semiconductor material, a plurality of metallic electrode means each bonded to a relatively large surface area of one of said pellets to form a plurality of unitary structures, said structures being substantially coaxially disposed in said tubular insulating container with the pellets of certain of said structures each in engagement with the electrode means of an adjacent one of said structures, a pair of metallic cover members forming a closure means for each end of said container, and resilient conducting means disposed within said container for maintaining adjacent ones of said structures in engagement and for completing a circuit between said cover members through said structures.

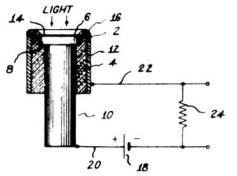
2,669,635
SEMICONDUCTIVE PHOTOELECTRIC TRANSDUCER
William G. Pfann, Basking Ridge, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 13, 1952, Serial No. 320,317
6 Claims. (Cl. 201—63)

1. A photoelectric translating device comprising a body of semiconductive material having therein a zone of first conductivity type between and contiguous with a pair of zones of a second conductivity type, terminal connections to said outer zones, and means for causing light to be absorbed within a distance of no more than one diffusion length from a junction of at least one of said outer zones with said middle zone, said light being of a frequency range of a minimum



wavelength of about 100 angstroms and of a maximum wavelength corresponding with about the average bandwidth of the forbidden region of the semiconductive material, the shortest route between the two regions of the second conductivity type through the region of first conductivity type being at least about two absorption lengths.

2,669,663
SEMICONDUCTOR PHOTOCONDUCTING DEVICE
Jacques I. Pantchechnikoff, now by change of name Jacques Isaac Pankove, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware
Application November 30, 1951, Serial No. 259,233
7 Claims. (Cl. 250—211)

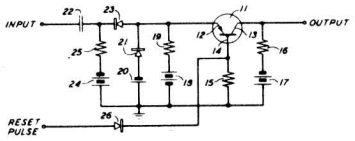


1. An electrical device comprising a body of semi-conducting material capable of forming a barrier layer at a surface thereof and having on said surface a semi-transparent film of a metal from the class consisting of antimony, bismuth, and beryllium, an electrode in contact with said body, another electrode in contact with said film, a source of bias voltage and means connecting said source across said electrodes.

2,670,445
REGENERATIVE TRANSISTOR AMPLIFIER
Jean H. Felker, Livingston, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application November 6, 1951, Serial No. 255,043
7 Claims. (Cl. 307—88)

3. A regenerative pulse amplifier which comprises, in combination, a flip-flop circuit comprising a transistor having emitter, collector, and

base electrodes, a base resistance common to the emitter-base and the collector-base paths of said transistor, a resistance and a source of direct voltage connected in series between said emitter electrode and said base resistance, and an asymmetrically conducting device and another source of direct voltage also connected in series between said emitter electrode and said base resistance, the quiescent direct voltage level of said



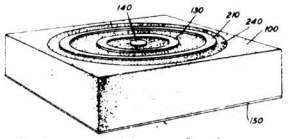
base electrode being between the respective direct voltages supplied by said sources and said asymmetrically conducting device being poled in the direction of positive emitter current flow, circuit means to supply signal pulses to said emitter electrode to trigger said flip-flop circuit to its high current state, and circuit means to supply a regular succession of pulses to said base electrode to reset said flip-flop circuit to its low current state and to regulate the output pulses produced thereby.

2,672,528

SEMICONDUCTOR TRANSLATING DEVICE

William Shockley, Madison, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York

Application May 28, 1949, Serial No. 96,059
11 Claims. (Cl. 179—171)



2. A signal translating device comprising a body of N-type semiconductive material having on one face thereof a zone of P-type material, a collector connection to said zone, emitter and base connections, one of which is to the opposite face of said body, a guard electrode upon said zone and encompassing said collector connection and adjacent the intersection of the junction between said zone and body and said one face, a first circuit connected between said emitter and base connections, a second circuit including means biasing said collector connection in the reverse direction relative to said body, and means biasing said guard electrode in said reverse direction and at a lower potential than the bias on said collection connection.

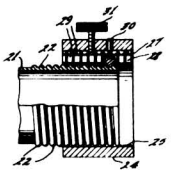
SECTION VI. SOUND AND SOUND-PICTURE RECORDING AND REPRODUCING APPARATUS

2,668,476

ADJUSTABLE LENS UNIT MOUNT

Warren R. Isom, West Collingswood, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application May 28, 1952, Serial No. 290,443
6 Claims. (Cl. 88—57)



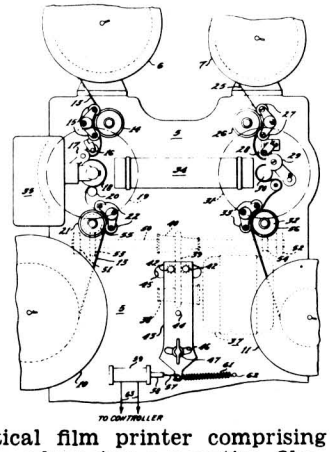
1. An adjustable lens unit mount comprising a housing having a longitudinal bore therein, a lens unit adapted to be moved longitudinally in said bore by threads on a cylindrical portion thereof, said housing having a second cylindrical bore therein parallel to said first bore and longitudinally intersecting said first mentioned bore, a rod having a series of circumferential grooves having the same pitch as said threads in said second bore, said rod being movable perpendicularly to its axis in said bore, means for preventing longitudinal movement of said rod, and means for applying pressure to said rod to provide a locking force between said rod and said unit by contact between said grooves and a plurality of said threads.

2,672,074

VARIABLE SPEED FILM PRINTER

Olin B. Gunby, Los Angeles, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application April 12, 1951, Serial No. 220,578
1 Claim. (Cl. 88—24)



An optical film printer comprising sprocket means for advancing a negative film, a second sprocket means for advancing positive raw stock, an exposure lamp of constant intensity, optical means for projecting light of constant intensity

on said negative film, light emerging from said negative film being impressed on said positive print stock, optical means for projecting said light emerging from said negative film on said positive print stock, a constant speed motor, an interconnecting drive means between said motor and both of said sprocket means for driving both of said sprocket means simultaneously, said interconnecting means including a speed changing means for said sprocket, said speed changing means including a pulley driven by said motor and having a taper in a certain direction, a second tapered pulley in said common interconnecting drive means and having a taper in the opposite direction, a belt interconnecting said tapered pulleys, a belt shifting member for shifting the belt along said pulleys axially, and locking means for said belt shifter for maintaining a constant speed when said negative film has a constant density, a solenoid being connected to said belt shifting member for shifting said belt axially along said pulleys in accordance with the amount of energization of said solenoid.

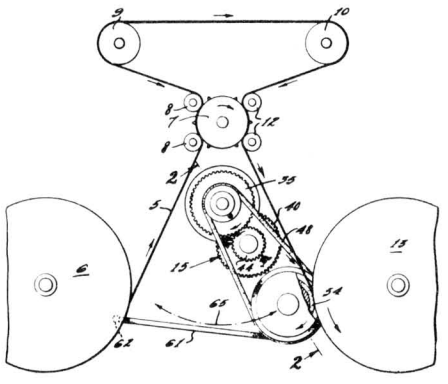
2,673,041

TAPE OR FILM ROLL DRIVING MECHANISM

Carl E. Hittle, North Hollywood, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application June 29, 1951, Serial No. 234,218
11 Claims. (Cl. 242—55)

1. A film reeling system for a pair of film rolls, comprising a reversible driving motor having a shaft, a gear train having one gear connected to said motor shaft when said motor rotates in one direction, and another gear of said train connected to said motor shaft when said motor rotates in the reverse direction, a roller for contacting said film rolls at mutually exclusive times depending upon the direction of rotation of said motor, a first interconnecting driving means be-



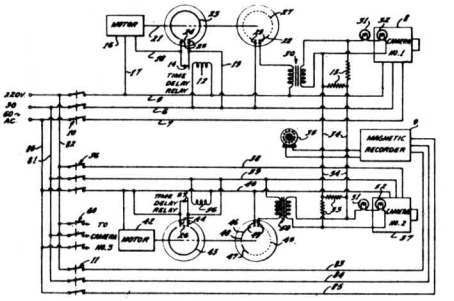
tween said roller and gear train for rotating said roller in a direction determined by the direction of rotation of said motor, a pulley, a second interconnecting driving means including said first interconnecting driving means between said pulley and gear train, and means connected to said pulley for shifting said roller from one of said film rolls to another when the rotational direction of said motor is reversed.

2,673,485

FILM SYNCHRONIZATION AND IDENTIFICATION MARKING SYSTEM

Robert W. Roderick, North Hollywood, Calif., assignor to Radio Corporation of America, a corporation of Delaware

Application July 27, 1951, Serial No. 238,962
8 Claims. (Cl. 88—16.2)



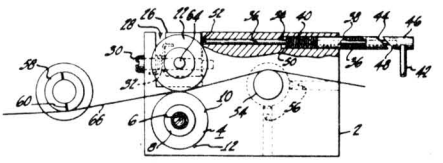
1. A system for providing synchronization marks on picture and sound films and for marking said films to identify said films, comprising a camera having a picture film therein, a sound recorder having a sound film therein, means for advancing said films in said camera and recorder, energizing means for said film advancing means, a commutating device including a motor energized by said energizing means, said device including a ring having a conducting section and a non-conducting section and a second ring having a conducting section and a non-conducting section, a circuit for initially energizing said motor of said commutating device, said circuit including a time delay relay for breaking said circuit after a predetermined time period, a second circuit for energizing said motor connected through said conducting section of said first mentioned conducting ring, said second circuit supplying power to said motor after said time delay relay has disconnected said first mentioned circuit from said motor, and a third circuit for applying energy from said energizing means through the conducting section of said second mentioned ring for exposing the film in said camera and marking the film in said recorder.

2,673,740

TAPE MARKER FOR MAGNETIC TAPE RECORDERS

Milton H. Hutt, Moorestown, N. J., assignor to Radio Corporation of America, a corporation of Delaware

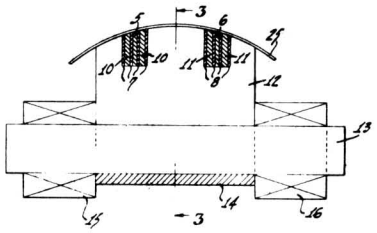
Application October 31, 1950, Serial No. 193,200
10 Claims. (Cl. 274—11)



7. In a magnetic-record tape editing machine, the combination with a magnetic signal reproducing transducer having a nonmagnetic gap of a tape marking device comprising a first roller, a second roller mounted adjacent to said first roller, said second roller being movable from a closed position in contact with said first roller to

an open position out of contact with said first roller, a marking pin substantially imbedded in and radially disposed with respect to said first roller, and positioning means associated with said first roller whereby said marking pin is normally disposed at a predetermined circumferential distance about said first roller from the point of contact between said rollers substantially equal to the distance from said point of contact to said gap in said transducer, the tape to be marked being insertable between said rollers while engaging said transducer.

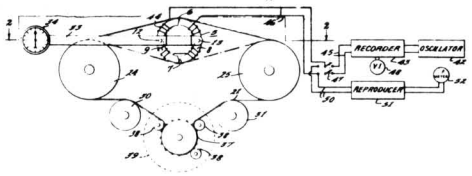
2,673,896
MAGNETIC RECORD ERASING TRANSDUCER
Michael Rettinger, Encino, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application December 29, 1951, Serial No. 264,194
4 Claims. (Cl. 179—100.2)



1. A magnetic transducer comprising a body portion having separated parallel notches therein, an assembly in each of said notches, said assembly consisting of a flat current carrying conductor, a layer of insulating material on each side of said conductor, and ferromagnetic material in contact with the other side of each of said layers of insulating material, a core, a primary winding of a transformer on said core, and a secondary winding for said transformer, said secondary winding connecting said conductors in parallel.

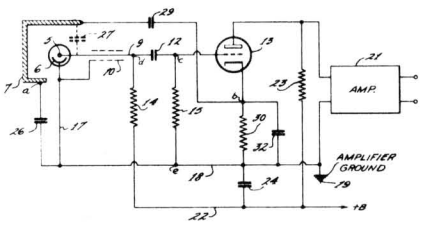
2,673,897
AZIMUTH TEST FILM SYSTEM AND METHOD
Michael Rettinger, Encino, Calif., assignor to Radio Corporation of America, a corporation of Delaware
Application January 29, 1952, Serial No. 268,878
8 Claims. (Cl. 179—100.2)

1. The method of determining the angle of the gaps of a magnetic head having two gaps therein in the same plane with respect to the direction of motion of a magnetic record medium adapted to travel over said gaps, comprising recording a magnetic record consisting of a series of longitudinally disposed magnetizations parallel to one another and extending substantially transversely of said medium, said magnetizations also being parallel to said recording gap and at a certain angle to the direction of motion of said medium



with one gap of said head, and reproducing said record with the other gap of said head with the medium in a position reversed from its recording position, said parallel magnetizations being disposed with respect to said other gap at twice the angle said magnetizations have with respect to the direction of motion of said medium.

2,673,935
PHOTOCELL-AMPLIFIER CIRCUIT
Fred D. Waldhauer, Philadelphia, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application October 26, 1951, Serial No. 253,285
7 Claims. (Cl. 250—210)



1. A connecting circuit between a photoelectric cell having an anode and cathode and an amplifier tube having an anode and cathode and grid, comprising a source of voltage, a coupling condenser connected between the anode of said cell and the grid of said tube, a polarizing resistor connected between the anode of said cell and said voltage source, a grid resistor connected between the grid of said tube and ground, a cathode resistor connected between the cathode of said tube and ground, a housing for said photoelectric cell, a condenser connected between said housing and the terminals of said grid resistor and said cathode resistor connected to ground, and a condenser connected between said housing and said cathode resistor.

SECTION VII. MEASURING AND TESTING APPARATUS

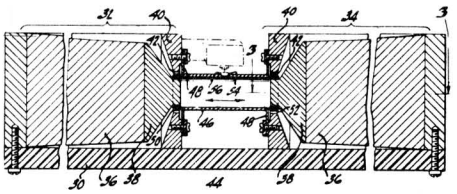
2,671,135

PHONOGRAPH PICKUP TEST INSTRUMENT

J Guy Woodward, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application August 5, 1950, Serial No. 177,861
15 Claims. (Cl. 179—175.1)

1. In an apparatus for testing an electric phonograph pickup of the type comprising means including a stylus adapted to ride in the modulated groove of a phonograph record for generating electrical signals in response to vibratory motion of said stylus, in combination, an electromechanical transducer including a vibratory member adapted to vibrate in response to and at a frequency determined by the frequency of electrical signals applied to said transducer, means on said vibratory element on which to rest said stylus to vibrate said stylus with said



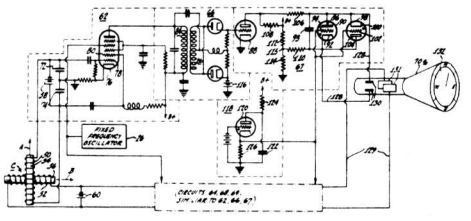
vibratory element, measuring means connected to said signal generating means of said pickup for measuring the electrical signal generated by vibration of said stylus, feedback signal generating means coupled to said vibratory element and responsive to vibratory motion of said element for generating an electrical signal representative of said vibratory motion and including measuring means connected to measure the signal generated by said last-named signal generating means.

2,671,275

MAGNETOMETER

Leslie L. Burns, Jr., Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application March 31, 1949, Serial No. 84,621
2 Claims. (Cl. 33—204)



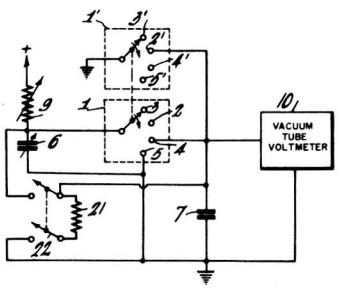
1. A magnetometer comprising, in combination, a pair of variably permeable members fixed at right angles to each other, a pair of inductance coils wound one on each of said core members, signal generating networks coupled to each of said coils for generating signals at frequencies which are functions of the effective inductances of said coils, magnetic-flux-producing means for establishing a constant unidirectional magnetic flux in each of said core members, and means for measuring and indicating concurrently the direction of the vector sum of said effective inductances as a function of the frequencies of the signals generated in each of said signal generating networks, said measuring and indicating means comprising a discriminator network coupled to each of said signal generating networks for producing D. C. voltages of relative magnitudes and polarities determined by the frequencies generated in said signal generating networks, and an indicator coupled to said discriminator networks for producing a composite indication of the voltages produced by said discriminator networks, said flux-producing means comprising a source of direct current connected to each of said coils for establishing magnetic-field-producing currents in said coils.

2,673,956

TIME INTERVAL MEASUREMENT

Joseph G. Beard, Haddonfield, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application September 22, 1949, Serial No. 117,231
3 Claims. (Cl. 324—68)

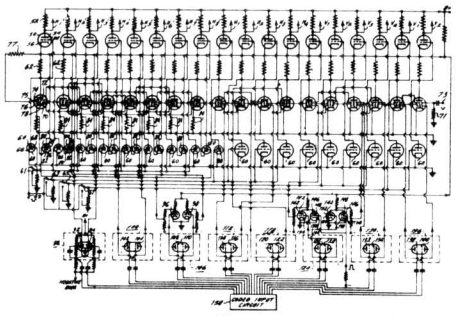


1. A time interval measuring device comprising in combination a source of charging potential, a first condenser, a series resistor connected between one side of said first condenser and said source, the other side of said first condenser being connected to ground, a second condenser, a sequential switch having a contact arm and at least three contact positions, the contact arm of said switch being connected to the junction between said resistor and said first condenser, the first or charging position being an open contact, the second position connecting said first condenser in parallel with said second condenser, the third position being so connected as to short circuit said first condenser, a second switch connected to short circuit said second condenser during the interval between the time the contact arm of said first switch leaves said first contact position and closes on the second contact position, and a potential measuring device connected to said second condenser to measure the potential established thereon by said first switching means.

SECTON IX. COMPUTERS AND COUNTERS

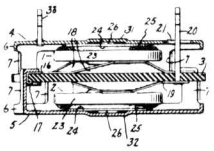
2,666,161
BIAS GENERATING MATRIX
Jan A. Rajchman and Max H. Mesner, Princeton, and Milton Rosenberg, Trenton, N. J., assignors to Radio Corporation of America, a corporation of Delaware
Application December 1, 1949, Serial No. 130,412
6 Claims. (Cl. 315—13)

1. The combination of a target area selection type of tube having a grid mesh including a plurality of separately insulated conductors upon which bias voltages are placed to determine the target area selected, and a bias voltage generating matrix for said grid mesh, said matrix including a plurality of bias generating vacuum tubes coupled to said conductors, said tubes each having two conditions of conductivity, a plurality of first means coupled to said plurality of bias generating vacuum tubes to determine their condition of conductivity, and a plurality of second means coupled to said plurality of bias generating tubes to determine the response of each of said tubes to said first means.



SECTION X. MISCELLANEOUS APPARATUS

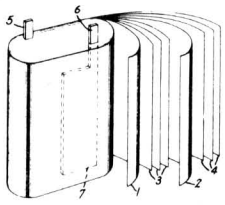
2,665,399
RECTIFIER ASSEMBLY
Fred J. Lingel, Syracuse, N. Y., assignor to General Electric Company, a corporation of New York
Application August 12, 1952, Serial No. 303,906
5 Claims. (Cl. 317—234)



1. A rectifier assembly comprising a pair of enclosed rectifier units each including opposed conducting walls forming terminals of the unit, means for mounting said units and connecting them in series for conduction in the same direction including an insulating plate, a pair of cooling plates of conducting material secured in spaced relation on opposite sides of said insulating plate and each retaining one of said units between said cooling plates with a corresponding one of said terminals of said units electrically connected respectively with said cooling plates, a contact member interposed between the other terminal of one of said units and said insulating plate on one side thereof and connected with the cooling plate on the remote side of said insulating plate, a contact member interposed between the other side of said insulating plate and the remaining terminal of the other of said units and the terminal connected with said last-mentioned contact and extending through said insulating plate and through a clearance opening in the other of said cooling plates.

2,665,400
ELECTRIC CAPACITOR
Benjamin M. Walker, Lenox, Mass., assignor to General Electric Company, a corporation of New York
Application November 17, 1950, Serial No. 196,180
4 Claims. (Cl. 317—258)

1. An electric capacitor comprising the combination of cooperating metal armatures and interposed paper dielectric spacer, said combination including said spacer being impregnated with a solid resinous product obtained by the in situ copolymerization of a liquid mixture consisting mainly of about 45 to 65 per cent monomeric styrene, 25 to 55 per cent liquid poly-alpha-methyl styrene and from 0.5 to 10 per cent divinyl benzene, said liquid mixture having the property of polymerizing to a solid state without the formation of bubbles, cracks and voids in the solidified mass.

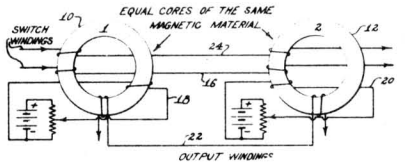


4. A dielectric material consisting essentially of the solid copolymerization product in relative proportions by weight of about 45 to 65 parts monomeric styrene, about 25 to 55 parts poly-alpha-methyl styrene having a viscosity of from 700–1000 centipoises at 60 deg. C., about one half to 10 parts divinyl benzene and about 0.1 to 2 parts of a polymerization catalyst, said solid copolymerization product being free of bubbles, cracks and voids.

2,666,151
MAGNETIC SWITCHING DEVICE

Jan A. Rajchman and Raymond Stuart-Williams, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application November 28, 1952, Serial No. 322,973
8 Claims. (Cl. 307—88)



8. A magnetic switch including a pair of cores of magnetic material each having substantially the same magnetic characteristic, at least two switching windings inductively coupled to said cores, means to separately and simultaneously excite said switching windings, an output winding coupled to both cores, the sense of the coupling on one core being opposite to the sense of the winding on the other core, a first magnetic bias winding, a second magnetic bias winding, and means to respectively apply a direct current to said first and second magnetic bias windings to magnetically bias said cores to those portions of their magnetic characteristics to provide substantially no resultant output in said output winding when said switching windings are separately excited and to provide a resultant output where said switching windings are simultaneously excited.

2,666,696
METHOD OF TREATING METAL POWDERS

Mark N. Fredenburgh, Summit, N. J., assignor to Radio Corporation of America, a corporation of Delaware

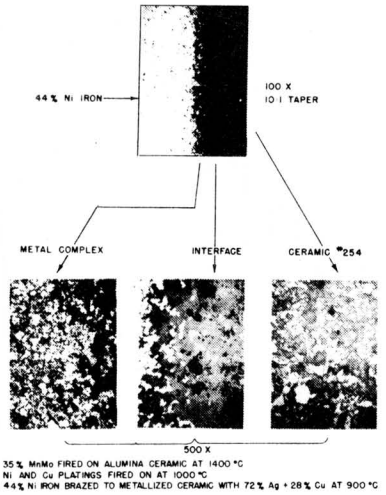
No Drawing. Application January 31, 1950, Serial No. 141,580
3 Claims. (Cl. 75—.5)

1. In a method of making a relatively strongly coherent tungsten-molybdenum alloy slug from commercial tungsten powder having unpredictable characteristics in respect of particle size distribution and size distribution peak and having relatively small and relatively large particles, and commercial molybdenum powder having a predictable particle size distribution of from slightly above zero to 10 microns in diameter and a size distribution peak of from one-half to five microns in diameter, said method comprising the steps of heating said commercial tungsten powder at a temperature from about 1660° to about 1750° C. for one-half hour to cause said relatively small particles of said tungsten powder to become sintered together in a relatively strongly coherent bond and to cause said relatively large tungsten particles to become sintered in a relatively weakly coherent bond, and subsequently mechanically working said sintered tungsten powder for about three hours to release said larger particles only from said relatively weakly coherent bond, for providing a treated tungsten powder having said predictable particle size distribution and size distribution peak, whereby said treated tungsten powder and said commercial molybdenum powder are adapted to be homogeneously mixed and sintered to provide said strongly coherent slug.

2,667,427
METHOD OF METALIZING A CERAMIC MEMBER

Henry J. Nolte, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Application July 27, 1951, Serial No. 238,871
8 Claims. (Cl. 117—22)

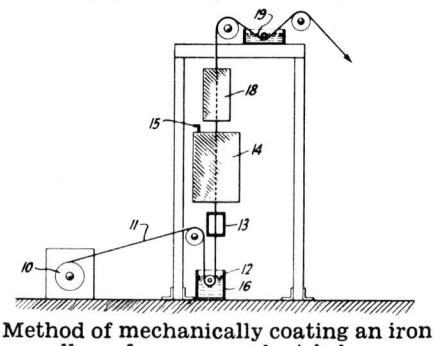


1. The method of metalizing a surface of a ceramic member which comprises applying to said surface a mixture of powders consisting essentially of elemental manganese and a metal selected from the group consisting of molybdenum, tungsten and iron and mixtures thereof, the manganese comprising from 10% to 50% by weight of said mixture of metal powders, heating the member and applied mixture of powders in an atmosphere non-oxidizing to said metal to a temperature of 1200° to 1400° C. to cause the manganese to form with the ceramic and the metal of said group a tightly adhering metal coating, the lower percentages of manganese being used with the more active ceramics and higher temperatures.

2,667,429
COATING MIXTURE WITH ADDITION AGENT AND METHOD OF COATING THEREWITH

John B. Diffenderfer, North Caldwell, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 11, 1949, Serial No. 75,876
7 Claims. (Cl. 117—65)



6. Method of mechanically coating an iron base with an alloy of copper and nickel; comprising continuously passing successive portions of a strip of said base through a slurry containing the

oxides of said copper and nickel, a suspending medium consisting of methanol and ethylene glycol mono ethyl ether, aluminum oxide contaminants, and lithium phosphate present in sufficient amount to dissolve all of said aluminum oxide contaminants; whereby the strip is coated with the materials of said slurry; feeding the coated strip upwardly from said slurry; heating said coated strip at a temperature of about 200° C. to drive off said suspending medium, and further heating said coated strip at about 1350° C. in a reducing atmosphere to first cause said lithium phosphate to take into solution said aluminum oxide contaminants in said slurry and then to reduce said oxides of copper and nickel to metallic form and to fuse the resultant metal; whereby said further heating is effective to fuse said metal at a lower temperature than the normal fusion temperature of said metal with said aluminum oxide in solid form, for preserving said strip from fusion and rupture during said upward feed of said strip.

2,667,431

METHOD OF METALIZING CERAMICS

Don G. Burnside, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

No Drawing. Application October 30, 1950, Serial No. 193,040

5 Claims. (Cl. 117—120)

1. A method of making a smooth, even, adherent metal coated ceramic article comprising bringing a solid body of an alloy, consisting essentially of 70 to 80% by weight copper and 30 to 20% by weight of a metal from the class consisting of titanium and zirconium, into physical contact with a surface of said article and effecting relative movement between said surface and said body, thereby causing a film of the alloy to be deposited adherently on said surface.

2,667,432

METALIZED CERAMIC

Henry J. Nolte, Schenectady, N. Y., assignor to General Electric Company, a corporation of New York

Original application January 14, 1947, Serial No. 722,029. Divided and this application January 21, 1949, Serial No. 71,893

2 Claims. (Cl. 117—123)

1. A metallized ceramic comprising a ceramic member having a tightly adhering metal surface thereon comprising manganese and a metal selected from the group consisting of molybdenum, tungsten, iron, nickel, and mixtures thereof, said manganese constituting a substantial percentage by weight of said metal surface and a portion of the manganese being combined with said ceramic to form a tightly adhering coating.

2,667,606

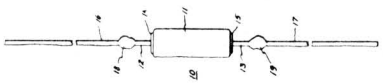
CAPACITOR AND TERMINAL LEAD THEREFOR

Robert M. Rood, Pittsfield, Mass., and Otto A. Keser, Aldan, Pa., assignors to General Electric Company, a corporation of New York

Application December 8, 1951, Serial No. 260,688

1 Claim. (Cl. 317—230)

In an electrolytic capacitor comprising a tubular container of metal, a pair of electrodes of tantalum metal wound into a roll and disposed within said container, a pair of terminal wires of tantalum metal respectively connected electrically to said electrodes and projecting exteriorally and respectively at the ends thereof from the opposite ends of said container, said terminal wires respectively extending through a pair of bushings of resilient insulating material positioned at said opposite ends of said container and sealing the interior thereof from the atmosphere, and a pair of leads of solderable metal electrically connected respectively to said tantalum terminal wires by welded joints, said joints being respectively positioned from said bushings a distance ranging from ⅛ to ½ inch, each of said



welded joints comprising a ball of tantalum integral with said projecting wire ends, said leads fused to said balls, said wires and leads extending from said balls in substantially opposite directions, and the diameter of said balls being substantially greater than the diameter of said wires and leads.

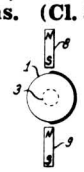
2,667,621

TORSIONAL FILTER

Leslie L. Burns, Jr., and Walter van B. Roberts, Princeton, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Original application March 30, 1949, Serial No. 84,372. Divided and this application June 7, 1950, Serial No. 166,618

3 Claims. (Cl. 333—71)



3. A torsional resonator assembly, comprising a torsional resonator formed by a figure of revolution, a plating of magnetostrictive material extending over less than the entire circumference of said resonator, and means for establishing a magnetic field linking said plating, in a direction transverse to the longitudinal axis of the resonator and in a plane including the edges of the plating.

2,668,246

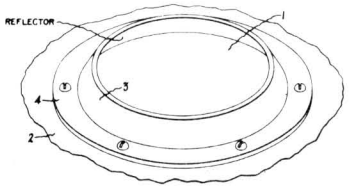
PHOTOCELL ANGLE RESPONSE COMPENSATOR

Wesley S. Burt, Lynn, Mass., assignor to General Electric Company, a corporation of New York

Application November 24, 1950, Serial No. 197,354

1 Claim. (Cl. 250—237)

In combination with a circular light cell, a compensator therefor comprising a hood shaped as the surface of a right circular cone with open top and bottom parallel to each other and with the bottom opening approximately equal to the



area of the cell and secured over and coaxial with the light sensitive surface of said cell, the hood being opaque with a good reflecting internal surface, the base angle of said cone being approximately 60 degrees and the ratio of height to base diameter of said hood being approximately 1/9.

2,668,869

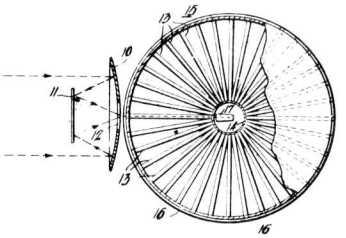
RADIO VIEWING SYSTEM

Harley A. Iams, Princeton, N. J., assignor to Radio Corporation of America, a corporation of Delaware

Application February 26, 1945, Serial No. 579,871

8 Claims. (Cl. 178—6.8)

8. In combination, means for imaging radio waves from a scene to be viewed whereby a radio wave image is formed, and a radio wave optical device comprising an assembly of radio wave guides having one end thereof located substantially in the plane of said radio wave image whereby said image is transferred to the other end of said device, each end of said device being a surface of predetermined geometric shape, the



ends of each wave guide terminating on said surfaces.

2,670,657

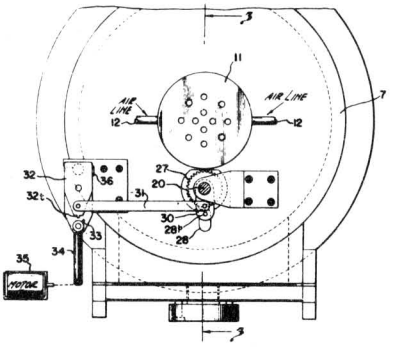
HIGH SPEED MICROTOMY

Perry C. Smith, Moorestown, Edmund G. Dornfeld, Barrington, and Gustav F. Burger, Camden, N. J., assignors to Radio Corporation of America, a corporation of Delaware

Application June 24, 1949, Serial No. 101,022

1 Claim. (Cl. 88—40)

In a microtome, a rotor, a knife carried by said rotor, means for continuously driving said rotor at a predetermined high rotational speed, a specimen holder mounted for movement into the path of said knife along a line substantially normal to said path, means for repeatedly advancing said specimen holder continuously toward said path during a plurality of rotations of said rotor and holding said specimen holder against advancement during another plurality of rotations of said rotor, said last mentioned means including a



screw mounted to move said specimen holder along its said line of movement, a ratchet mounted on said screw for imparting said motion to said screw, a pawl mounted in driving engagement with said ratchet, an actuating link connected adjacent to one of its ends to said pawl, a cam connected to said link adjacent to the other end, a gear mounted for rotation adjacent to said cam and having a single tooth for periodically actuating said cam whereby said link is reciprocated by the actuation of said cam to thereby actuate said pawl, and means for continuously rotating said gear.

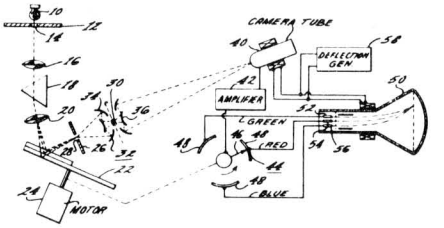
2,671,128

MICROSCOPY SYSTEM

Vladimir K. Zworykin, Princeton Township, Mercer County, N. J., and Edward G. Ramberg, Huntingdon Valley, Pa., assignors to Radio Corporation of America, a corporation of Delaware

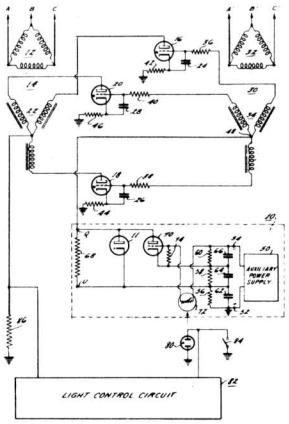
Application July 31, 1951, Serial No. 239,534

10 Claims. (Cl. 178—5.2)



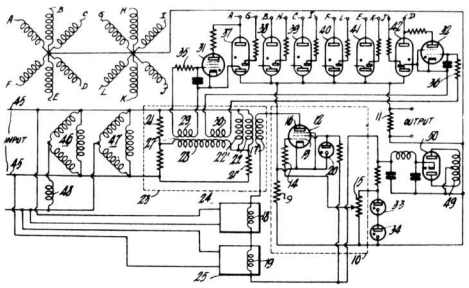
1. A system for translating the differences in spectral transmission of an object to selected light wavelengths into color differences comprising a source of light including said selected wavelengths, means upon which said light is focussed to separate said light into a number of wavelengths including said selected wavelengths, means to separate and sequentially reflect said selected wavelengths upon said object, means to generate video signals responsive to the transmission of said object at said selected wavelengths, and means to which said video signals are applied to display an image of said object in a sequence of colors each of which is associated with one of said selected wavelengths whereby an image of said object is displayed on the screen of said kinescope in colors corresponding to its transmission at said selected wavelengths, said means to separate and sequentially reflect said selected wavelengths comprising a disc having a plurality of flat, parallel sectors equal in number to the number of said selected wavelengths, said sectors being recessed from each other along the disc axis by a distance dependent upon said selected wavelengths.

2,673,952
DECOUPLING SYSTEM
Merle V. Hoover, Mountville, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application May 21, 1952, Serial No. 289,062
9 Claims. (Cl. 321—13)



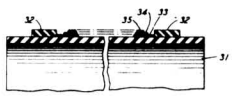
1. The combination, with a rectifier system comprising a plurality of grid controlled gaseous conduction tubes, means to fire said tubes cyclically, and means to unblock and block said rectifier system, of a decoupling system adapted to decouple said tubes, said decoupling system being in circuit with said unblocking and blocking means and said firing means, said firing means comprising an impulse transformer having secondary legs each of which has an end connected to a grid of one of said tubes respectively, said blocking and unblocking means comprising a unidirectional power supply, and said decoupling system comprising a resistor, and a diode connected in shunt with said resistor and in series with said secondary legs and said power supply.

2,673,953
VARIABLE REGULATED IGNITRON RECTIFIER
Hubert H. Wittenberg, Lancaster, Pa., assignor to Radio Corporation of America, a corporation of Delaware
Application June 14, 1951, Serial No. 231,563
3 Claims. (Cl. 321—18)



3. An electronic voltage control device comprising in combination, output terminals, a rectifier for producing a direct current output voltage across said output terminals, a phase shifting network including a space discharge device regulated for constant gain having a cathode, a control grid, an anode and an auxiliary grid, said auxiliary grid being biased by a constant voltage, a cathode resistor connected to said cathode, said cathode resistor being connected across said output terminals, said control grid being adapted to be biased at least in part by a regulated direct current voltage, a saturable reactor, said anode being connected in series with said saturable reactor and means including said saturable reactor for varying the conductivity of said rectifier, said means being controlled by said phase shifting network.

2,673,961
INDUCTANCE COIL
Robert J. Williamson, Morristown, N. J., assignor to Bell Telephone Laboratories, Incorporated, New York, N. Y., a corporation of New York
Application December 16, 1950, Serial No. 201,128
5 Claims. (Cl. 333—70)



1. An inductance coil comprising a core of insulating material and a plurality of superposed coils of wire, each consisting of a single layer, on the core; the individual coils being conductively connected in parallel and having progressively fewer turns from the innermost to the outermost.

Chester W. Säll

Chester W. Säll