L 8797-66

ACC NR: AP5026965

analysis of the device. The unit has a passband of 10 cps in one channel and 8.5 cps in the other. Results of experimental tests are given. Orig. art. has: 2 figures and 13 formulas.

SUB CODE: 09 / SUBM DATE: 18Mar65 / ORIG REF: 001 / OTH REF: 002

jw

Card 2/2

L 15550-66 EWT(1)

ACC NR: AP6002082 SOURCE CODE: UR/0139/65/000/006/0061/0066

AUTHORS: Petrov, B. K.; Nifontov, N. G.

39
B

ORG: Voronezh State University (Voronezhskiy gosuniversitet)

TITLE: On the influence of fast states on the capacitance of a structure consisting of a semiconductor, a dielectric film, and a metal

SOURCE: IVUZ. Fizika, no. 6, 1965, 61-66

TOPIC TAGS: continous spectrum, varactor diode, semiconductor band structure, variable capacitor

ABSTRACT: The authors analyze the influence of fast states with arbitrary energy spectrum, both discrete and quasicontinuous, on the capacitance of a varactor, assuming that the conductivity of the dielectric layer is infinitesimally small and that the leakage through the dielectric can be neglected. It is also assumed that the period of the oscillations is much longer than the relaxation time of the fast states, so that the latter can enter in equilibrium with the

Card 1/2

L 15550-66

ACC NR: AP6002082

0

space-charge region even at low frequencies. Earlier investigations of this subject were confined to frequencies in which the fast states were inactive, or to fast states with discrete spectra alone. A theoretical expression is obtained for the relations between the capacitance of such a structure and the curvature of the bands on the surface of the semiconductor for low frequencies. The effects of the slow states is also considered. Methods of experimentally verifying the results must include simultaneous measurements of the capacitance and of the field effect on structures of this type. Such a method is claimed to yield unambiguous results. By way of an example, a structure consisting of Si-SiO$_2$-metal, with the silicon being of the p-type and having a resistivity 100 ohm-cm, and the insulating film having a thickness of 200 Å and a dielectric constant 3.84. Comparison of the results with calculations in which the fast states are not taken into account shows that the fast states give rise to a capacitance peak, which can be used to calculate the number of discrete levels of fast states, their energy positions, and their concentration. Orig. art. has: 16 formulas and 2 figures

SUB CODE: 09/ SUBM DATE: 08Jan64/ ORIG REF: 001/ OTH REF: 007

Card 2/2 GC

[illegible] V, B.K.; [illegible] V, [illegible]

Effect of transient states [illegible]
system semiconductor [illegible]
ucheb. zav.; Fiz. 8 [illegible]

[illegible]

[illegible], B.F. (L[illegible]) ; [illegible] [illegible] ; [illegible] ;
[illegible], Ya... (L[illegible]) ;

Pre[illegible] [illegible]
[illegible] [illegible] 18, Avtom. [illegible]

PETROV, B.K.; SMOLOV, V.B.; UGRYUMOV, Ye.P.

Transistor logarithmic time-to-pulse converter. Izm. tekh. no.9:29-32 S '63. (MIRA 17:1)

MARKOV, G.T.; PETROV, B.M.

Excitation of an impedance band on a half-plane. Izv. vys. ucheb. zav.; radiofiz. 8 no.3:531-536 '65.

(MIRA 18:8)

1. Moskovskiy energeticheskiy institut.

KRENDELEV, F.P.; LUCHKO, A.G.; PONETAYEV, P.A.; PETROV, B.M.

Quartz syenites in the northern part of the Yenisey Range. Sov. geol. 8 no.4:129-131 Ap '65. (MIRA 18:7)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR.

PETROV, B.M.

Mutual and self conductances of the radiation of slots on a wedge. Radiotekh. i elektron. 10 no.6:1135-1137 Je '65. (MIRA 18:6)

PETROV, B.M.

Forest reserve in the Tien Shan. Priroda 47 no.5:92-93 My '58.
(MIRA 11:5)

1. Gorno-lesnoy zapovednik, g. Parkent, Tashkentskoy oblasti.
(Chatkal Range—Forest reserves)

PETROV, P. M.

[redacted]

"The Automation of Water Whel Generator Units."

In book - New Developments in the Design of Electric Equipment for Hydro-electric Power Plants, 1957. p., Moscow-Leningrad, Gosenergoizdat.
(Data on the Conference on Design and Operation, Moscow, 10-14 May 1956.)

Petrov, B.M.

AUTHOR: Petrov, B.M. [illegible]

TITLE: A Forest Reserve in the Mountains of Tyan'-Shan' (Lesnoy zapovednik v gorakh Tyan'-Shanya)

PERIODICAL: Priroda, 1958, Nr [illegible], pp [illegible] (USSR)

ABSTRACT: The Gorno-lesnoy gosudarstvennyy zapovednik (Mountain-Forest State Reserve) situated in the western part of the Tyan'-Shan' mountains in the spurs of the Chatkal'skiy Mountain Range preserves a rich collection of the mountainous flora and fauna of Central Asia and occupies an area of 11,000 hectares. It comprises three belts: the dry grass steppe up to 1,600 m; the shrub and tree zone from 1,600 to 2,400 m, and the mountain steppe over 2,400 m. The reserve was established in 1947, but its territory was reduced in 1952. Intensive study of soil conditions, microflora, potentially valuable plants and trees, and animal pests, is being conducted, the results of which will be published. There are 2 photographs.

ASSOCIATION: Gorno-lesnoy zapovednik, g. Parkent, Tashkentskaya oblast. (Mountain-Forest Reserve, town of Parkent, Tashkent Oblast')

AVAILABLE: Library of Congress

Card 1/1 1. Plants-Central Asia 2. Animals-Central Asia 3. Forestry-USSR

AUTHOR: Petrov, B.M. and Fatyushenko, S.G., Engineers. 104-2-7/38

TITLE: Self-braking of hydro-alternator sets. (Samotormozhenie gidroagregatov)

PERIODICAL: "Elektricheskie Stantsii" (Power Stations), 1957, Vol. 28, No.2, pp. 33 - 35 (U.S.S.R.)

ABSTRACT: When self-braking of hydro-alternator sets is used instead of forced air braking there is no need to instal a compressor, compressed air bottles, solenoid valves, pressure relay, speed control relay and other automatic braking equipment and the automatic control of the set can be made simpler and more reliable. Tests on self-braking were carried out in 1954-1955 on sets with rotating blades and on radial-axial turbines both with and without operating turbine shutters. The characteristics of the turbines are tabulated; they are seven in number ranging from 350 to 41 500 kW and from 3 to 100 m head.

Measurements were made of the bearing pad and oil bath temperatures as functions of the generator load and set speed. Speed curves were taken and the temperatures of the pads, bearings and oil were measured as the sets stopped without artificial braking. The sets were repeatedly started and stopped without braking both immediately and at intervals up to 24 hours. The results of the tests are given in the form of

Card 1/2

There are 4 figures.

AVAILABLE:

PETROV, B.M.

Ecology and practical significance of the relict suslik in the western part of the Chatkal Range. Uzb.biol.zhur. no.5:75-78 '59. (MIRA 13:4)

1. Chatkal'skiy gornolesnoy zapovednik.

(CHATKAL RANGE--SUSLIKS)

PETROV, B.M.; ZASLAVSKIY, F.Ya.

Perfecting gamma-ray radiography in a factory. Zav.lab. 25
no.7:885 '59. (MIRA 12:10)
(Welding--Testing) (Gamma rays--Industrial applications)

28(5) SOV/32-25-7-40/50

AUTHORS: Petrov, B. M., Zaslavskiy, F. Ya.

TITLE: Attempt at Perfecting Gammagraphy at the Factory (Opyt sovershenstvovaniya gammagrafirovaniya na zavode)

PERIODICAL: Zavodskaya laboratoriya, 1959, Vol 25, Nr 7, p 868 (USSR)

ABSTRACT: Radioactive preparations for irradiation have recently been used at ship-building yards. In the TsZL (Central Works Laboratory) a suitable spherical container with a revolving lock on the cast-steel body (Fig 1) was designed. The container is resistant, offers good protection against radiation and is comparatively light (about 20 kg for Co^{60} preparations of an activity of 0.5 gram equivalent Ra and 45 kg with an activity of 1.5 gram equivalent Ra). Two additional types of containers were designed for special purposes. One serves for the irradiation of weld seams of discharge pipes of boilers and has an installation device (Fig 2), the second serves for the irradiation of cylindrical weld seams of long pipes (Fig 3). At present, all the gammagraphical work at the works is carried out by these three apparatus. In examining the functioning of these apparatus by a dosimeter DK-0.2 it appeared that

Card 1/2

SOV/[illegible]-7-40/[illegible]

Attempt at Perfecting Gammagraphy at the Factory

they meet all demands of protection. There are [illegible] figures.

Card 2/2

MAYATIN, A.A., kand.tekhn.nauk; PETROV, B.M., inzh.

Devices for automatic loading and unloading on conveyor dryers. Der. prom. 10 no. 4:15-16 Ap '61. (MIRA 14:4)
(Lumber--Drying)

PETROV, [illegible]

Systematics and age variation of Menzbier's marmot (Marmota menzbieri Kaschk.) Zool. zhur. 40 no. 1:93-105 Ja '61.
(MIRA 14:[illegible])

1. Chatkalsk[illegible] [illegible] preserve, Tashkent Re[illegible],
Parkent.
(Chatkal [illegible]—Marmots)

PETROV, B.M.

Range of Marmota menzbieri Kaschk. and the Western boundary of the occurrence of Marmota caudata Geoffr. in the northern Tien Shan. A new subspecies of Marmota menzbieri Kaschk. Zool. zhur. 42 no.5:743-751 '63. (MIRA 16:7)

1. Chatkalsk Mountain-Forest Preserve, Parkent, Tashkent region.
(Tien Shan--Marmots)

PETROV, B.M.

Winter feeding habits of the long-eared owl and the occurrence of the musk shrew Suncus etruscus savi in the piedmont of the western Tien Shan. Zool.zhur. 44 no.10:1579-1581 '65. (MIRA 18:11)

1. Muzey prirody, Tashkent.

FATYUSHENKO, S.G., inzhener; PETROV, B.M., inzhener.

Self-synchronization of hydraulic generators having delayed application of excitation. Elektrichestvo no.10:66-69 O '57.
(MLRA 10:9)

1. Gidroenergoproyekt.
(Electric generators)

MAYATIN, A.A., kand. tekhn. nauk; PETROV, B.M., inzh.

Mechanisms for the semiautomatic assembly of plies. Der. prom. 8 no.11: 6-7 N '59. (MIRA 13:3)

1.TSentral'nyy nauchno-issledovatel'skiy institut fanery i mebeli.
(Plywood)

PETROV, B.M.

Effect of rodents on the alpine pasture vegetation in the western part of the Chatkal Range. Uzb. biol. zhur. no.5:45-48 '60. (MIRA 13:11)

1. Chatkal'skiy gorno-lesnoy zapovednik.
(Chatkal Range—Pastures and meadows) (Rodentia)
(Agricultural pests)

PETROV, B.M.; SAFONOV, A.I.; ZASLAVSKIY, F.Ya.

Ultrasonic quality control of the weld seams of body structures.
Zav.lab. 26 no.11:1241-1244 '60. (MIRA 13:11)

1. Nikolayevskiy zavod im. I.I.Nosenko.
(Welding--Testing) (Ultrasonic testing)

PETROV, F. M. Cand Biol Sci -- "Ecology of rodents of the western part of the Chatkal'skiy mountain range and their importance in high-altitude pastures." Tashkent, 1961 (Min of Higher Education UzSSR. Tashkent State Univ im V. I. Lenin). (KL, 4-61, 192)

PETROV, B.M.

Discovery of a red pika in the Zaamin Preserve. Uzb. biol. zhur. 6 no.2:70 '62. (MIRA 15:4)

1. Chatkal'skiy gorno-lesnoy zapovednik.
(ZAAMIN PRESERVE—PIKAS)

AUTHORS: [illegible] and [illegible]

TITLE: Ultrasonic [illegible] of Weld Seams [illegible] Constructions [illegible]

PERIODICAL: Svarochnaya [illegible] Nr 4 [illegible] pp [illegible]

TEXT. In the plant [illegible] of the [illegible] the TsNIITS and the [illegible] workers S. A. Andriyev, [illegible] Khar[illegible], [illegible] Shilov, and N. Ya. Sereda a method was devised [illegible] of weld seams. The [illegible] mainly [illegible] qualitative classification [illegible] dividing the defects into three groups [illegible] flaw [illegible] standards of the X ray and gamma radiographic [illegible] quality being established from the results [illegible] of the defects [illegible] workpiece. A /3 [illegible] UZDN 7N device was used [illegible] to fix the standard series and the gamma radiograms of the [illegible] compared with the ultrasonic diagrams [illegible]

Card 1/[illegible]

Ultrasonic Quality Control of Weld Seams in Frame Constructions

[illegible]

Inspections [illegible] that [illegible] detecting defects such as [illegible] welded seams [illegible] through longitudinal and transverse [illegible] considerably higher than [illegible] gamma [illegible] higher than in the X ray [illegible] the ultrasonic method [illegible] differentiation between the mark [illegible] indications are offered [illegible] ultrasonic method. [illegible] follows. Mark [illegible] less than four per [illegible] welded [illegible] extend [illegible] seam [illegible] defects over a length of [illegible] mm per [illegible] defective spots being at least [illegible]% [illegible] defects which [illegible] and quality. There are [illegible]

[illegible]

[illegible]

ASSOCIATION [illegible]

[illegible]

PETROV, B.M.

Ecology of Marmota menzbieri Kaschk. Uzb. biol. zhur. no.3:42-47 '60.
(MIRA 13:7)

1. Chatkal'skiy gorno-lesnoy zapovednik.
(CHATKAL RANGE--MARMOTS)

PETROV, B.M

Some results of light measurements under ice in Lake Punnus-Yarvi. Trudy Lab.ozeroved. 11:80-84 '60. (MIRA 14:8)
(Krasnoye, Lake—Ice—Optical properties)

PORT, B.S.; VORONENKO, L.M.; Prinimali uchastiye: IVANOV, L.I., MAYOROVA,
A.V.; PETROV, F.M.

Some problems of the improvement of the design and manufacture of press molds for tread vulcanization. Kauch. i rez. 23 no.10: 44-46 O '64.
(MIRA 18:2

1. Vsesoyuznyy nauchno-issledovatel'skiy i konstruktorskiy institut po oborudovaniyu dlya shinnoy promyshlennosti, g. Yaroslavl'.

L 13120-66 EWT(1) IJP(c)
ACC NR: AP5020365 SOURCE CODE: UR/0141/65/008/003/0531/0539

AUTHOR: Markov, G. T.; Petrov, B. M.

ORG: Moscow Power Engineering Institute (Moskovskiy energeticheskiy institut)

TITLE: Excitation of an impedance strip on a semiplane

SOURCE: IVUZ. Radiofizika, v. 8, no. 3, 1965, 531-539

TOPIC TAGS: magnetic field intensity, Fredholm equation, Green function, traveling wave

ABSTRACT: The problem is formulated by considering a conducting semiplane with a given distribution of electric and magnetic current densities and given boundary conditions along the edges of the strip. In the solution, the equation for the magnetic field intensity contains vectors for the auxiliary field of a magnetic dipole with unit moment situated at the observation point. The auxiliary field is selected so that the equations for the electric and magnetic surface currents are reduced to Fredholm equations of the second type with finite integration limits. Integral equations of currents are obtained on the strip for TM and TE

UDC: 621.371

Card 1/2

L 13120-66

ACC NR: AP5020365

waves. For the TM waves, the integral equation for the magnetic current is solved approximately by the Krylov-Bogolyubov method. Graphs showing the distribution of the magnetic current on the strip as well as the directional pattern of the impedance strip excited by a slit of finite width are presented. The graphs show that the position of the impedance strip with respect to the edge of the semiplane has a weak effect on the distribution of the magnetic current in the strip. When the distance from a strip to the edge of the semiplane is decreased, there is a slight decrease in the traveling wave ratio for the current. However, this effect is very small, although there is a substantial change in the radiation pattern. The radiation pattern of the antenna also depends substantially on the position of the latter with respect to the edge of the semiplane. The authors are grateful to L.S. Yakobson for programming the computer for the calculations. Orig. art. has: 6 figures, 19 equations.

SUB CODE: 09,20/ SUBM DATE: 17Aug64/ ORIG REF: 005/ OTH REF: 001

Card 2/2 HW

L 13354-66

ACC NR: AP6001936 SOURCE CODE: UR/0142/65/008/006/0676/0685

AUTHOR: Markov, G. T.; Petrov, B. M.

43
B

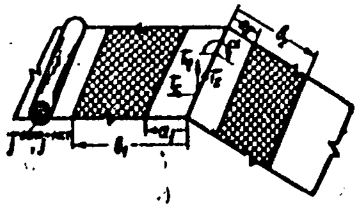
ORG: none

TITLE: Excitation of impedance strips on a wedge

SOURCE: IVUZ. Radiotekhnika, v. 8, no. 6, 1965, 676-685

TOPIC TAGS: impedance antenna, antenna, electric impedance, Maxwell equation, integral equation, electric current, electromagnetic field

ABSTRACT: A general case of excitation of finite-length impedance strips by concentrated sources is considered; the strips are situated on the sides of an arbitrary-angle α (see figure) infinite wedge, and the impedance is assumed to be nonuniform. This general case is important for the theory of impedance antennas. Assuming that the distribution of volume density of the exciting electric and magnetic currents is specified as are the impedance boundary conditions for the lower side of the wedge, the electromagnetic field is determined which everywhere satisfies the Maxwell equations, at infinity satisfies the radiation condition, within the wedge sides satisfies specified conditions, and in other parts satisfies zero



Impedance strips
on a wedge

Card 1/2 UDC: 621.396.67.012.12

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L 13354-66

ACC NR: AP6001936

boundary conditions. Integral equations are set up on the basis of the above assumptions. The integral equation of magnetic current in one strip is solved for TM modes by the Krylov-Bogolyubov method; the impedance strip is situated on the upper side of the wedge and is excited by a slot cut in the same side. Diagrams of distribution of the magnetic currents over the strip are presented. The antenna directional pattern is found to be strongly dependent on the angle α. Orig. art. has: 5 figures and 43 formulas.

SUB CODE:09,20/ SUBM DATE: 17Aug64 / ORIG REF: 004 / OTH REF: 004

9c

Card 2/2

L 35563-65 EWP(k)/EWT(d)/EWP(h)/EWA(d)/EWP(l)/EWP(v) Pf-4

ACCESSION NR: AP5008218 S/0286/65/000/005/0080/0080

30

AUTHORS: Viktorov, V. A.; Petrov, B. N.; Koridze, O. S.; Kornyushin, P. M.; Rabskiy, V. N.; Chistyakov, N. N.

B

TITLE: A method for measuring the level of a liquid. Class 42, No. 168911

gM

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 5, 1965, 80

TOPIC TAGS: liquid level, frequency, resonance, liquid level gage

ABSTRACT: This Author Certificate introduces a method for measuring the level of a liquid by determining the dependence of the resonance frequency on the level of the measured liquid. To increase the accuracy of measurements, a stepwise relation between the resonance frequency and the measured level is established. The levels at the midpoints of the frequency dependence steps are then determined.

ASSOCIATION: none

SUBMITTED: 19Nov63 ENCL: 00 SUB CODE: IE

NO REF SOV: 000 OTHER: 000

Card 1/1

L 60213-65 EWT(d)/EWT(l)/EEC(m)/EWA(d)/EWP(v)/EWP(k)/EWP(h)/EWA(h)/EWP(l)/EPR/
ETC(m) Pe-4/Pq-4/Pf-4/Ps-4/Pi-4 WW UR/0286/65/000/012/0087/0087
ACCESSION NR: AP5019059 47

AUTHORS: Viktorov, V. A.44; Petrov, B. N.44 B

gm

TITLE: A method for measuring the liquid level in vessels. Class 42, No. 172078

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 12, 1965, 87

TOPIC TAGS: liquid level, liquid level gage, resonance frequency, electromagnetic oscillation 25 14,44

ABSTRACT: This Author Certificate presents a method for measuring the liquid level in vessels by comparing the resonance frequencies of electromagnetic oscillations induced in the vessel along two dissimilar high frequency ducts made in the form of rods analogous in shape, with current-conducting elements (rings, spirals, etc) uniformly distributed along their lengths. To increase the measurement accuracy under the varying electromagnetic properties of a liquid and the state of the ambient medium, the step-wise output characteristics of the ducts are offset in respect to one another by a magnitude equal to one half of a step. The level is then estimated from the coincidence of the resonance frequencies of both ducts.

ASSOCIATION: none

SUBMITTED: 14Jul64 ENCL: 00 SUB CODE: IE

NO REF SOV: 000 OTHER: 000

Card 1/1 dm

L 6574-66 EWT(1)/EWA(h)/ETC(m) WW

ACC NR: AP5025050 SOURCE CODE: UR/0286/65/000/016/0091/0091

AUTHORS: Viktorov, V. A.; Petrov, B. N.; Abramov, A. S.; Maslov, G. S.; Khokhlov, V. P.; Samsonov, G. A.

37
B

ORG: none

TITLE: Resonance level gauge. Class 42, No. 173971

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 91

TOPIC TAGS: liquid level indicator, resonator, HF oscillator, electronic circuit

25

ABSTRACT: This Author Certificate presents a resonance level gauge containing a high frequency oscillator for exciting a resonance detector with a step frequency characteristic and a frequency modulator for periodic variation of the oscillator frequency in the range of the level variation. To increase the accuracy of discrete measurement of the liquid level 9 at given points, the device is provided with tank circuits excited by the oscillator at the same time with the detector. The tank circuits are tuned to the frequencies determined by the given values of the measured level. With the coincidence of the resonance frequency of the detector and the resonance frequency of the corresponding tank circuit, the signal

Card 1/2 UDC: 681.128.82

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L 6574-66

ACC NR: AP5025050

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from the tank circuit is fed in parallel with the detector signal to the inputs of coincidence circuits which are connected to the signal device (see Fig. 1).

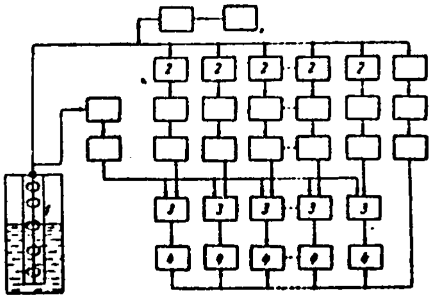

Fig. 1. 1- detector; 2- tank circuits; 3- coincidence circuits; 4- signal device

Orig. art. has: 1 diagram.

SUB CODE: EC/ SUBM DATE: 28Mar64

Card 2/2

L 7639-66 EWT(1)/EWA(h)/ETC(m) WW

ACC NR: AP5025053 SOURCE CODE: UR/0286/65/000/016/0092/0092

AUTHORS: Viktorov, V. A.; Petrov, B. N.; Abramov, A. S.; Maslov, G. S.; Khokhlov, V. P.; Samsonov, G. A.

39

B

ORG: none

TITLE: Resonance level gauge. Class 42, No. 173974

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 92

TOPIC TAGS: liquid level indicator, resonator, electronic circuit, electronic oscillator

25

ABSTRACT: This Author Certificate presents a resonance level gauge containing a frequency-modulated oscillator for exciting the resonance detector and tank circuits tuned to the frequencies corresponding to the discrete values of the measured level divided in height at equal intervals. To increase the accuracy of digital level measurement with nonlinear variation of the detector and oscillator output characteristics, the gauge is provided with a device in the form of trigger counters. These counters determine the number of scale pulses from the tank circuits given off with the coincidence of the oscillator frequency and the resonance frequency of the corresponding tank circuit until the appearance of the detector

UDC: 681.128.82

Card 1/3

Z

L 7639-66

ACC NR: AP5025053

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pulse. The gauge is also provided with a device for determining the time lag of the detector pulse relative to the immediately preceding scale pulse. These devices are connected through controllable logic switch elements respectively to the output of the tank circuits and to the output of the clock oscillator (see Fig. 1).

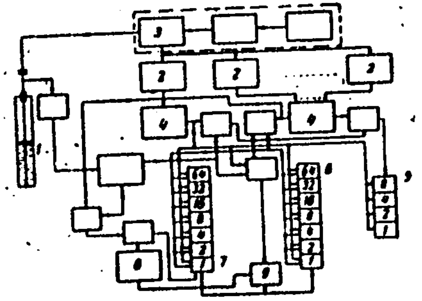

Fig. 1. 1- detector; 2- tank circuits; 3- frequency-modulated oscillator; 4- scale pulse counter; 5- counter for time lag of detector pulse relative to immediately preceding scale pulse; 6- logic elements; 7- switches; 8- clock oscillator; 9- counter for determining time interval between two scale pulses

To increase the accuracy of measurements, the gauge is provided with a device for determining the time interval between scale pulses. The device is in the form of a trigger counter connected to the clock oscillator by two electric channels with switches. One of the switches is controlled by the logic elements. The

Card 2/3

L 7639-66

ACC NR: AP5025053

O

other is opened by the detector pulse and is closed by the immediately following scale pulse. Orig. art. has: 1 diagram.

SUB CODE: EC/ SUBM DATE: 28Mar64

Card 3/3

L 3559-66 EWT(1)/EWA(h)/ETC(m) WW

ACCESSION NR: AP5024413

UR/0286/65/000/015/0093/0093

17

B

AUTHORS: Viktorov, V. A.; Petrov, B. N.; Chistyakov, N. N.

TITLE: Level detector for discrete resonance level gauges, Class 42, No. 173447

25

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 93

TOPIC TAGS: liquid level indicator

ABSTRACT: This Author Certificate presents a level detector for discrete resonance level gauges, containing two high frequency channels similarly made in the form of rods with conducting elements (rings, spirals, etc) equally spaced along the length of the rod (see Fig. 1 on the Enclosure). To increase the accuracy of measurement with changes in the electromagnetic properties of the medium, the rods with the conducting elements are shifted in height so that their output step characteristics are shifted relative to each other by half a step. Orig. art. has: 1 diagram.

ASSOCIATION: none

SUBMITTED: 28Jul64

ENCL: 01

SUB CODE: IE

NO REF SOV: 000

OTHER: 000

Card 1/2

L 3559-66
ACCESSION NR: AP5024413

ENCLOSURE: 01

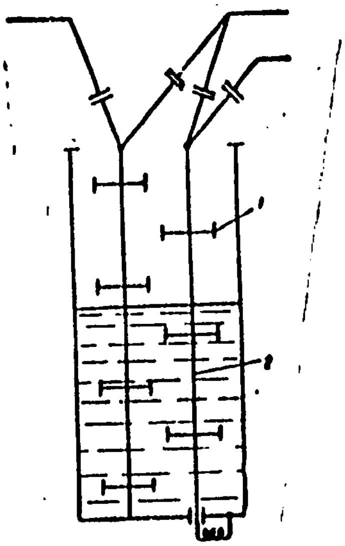

Fig. 1.
1- conducting elements; 2- rods

Card 2/2

PETROV, B. N.

INSTITUTE of Automatics and Telemechanics, Academy of Sciences, USSR. "The Construction and Transformation of Structural Diagrams." Iz. Ak. Nauk SSSR, Otdel. Tekh. Nauk, No. 12, 1945. Submitted 6 Aug 1945.

[redacted] Report U-1582, 6 Dec. 1951.

PETROV, B.N.

Petrov, B. N. Inapplicability of the theorem on the differential inequality of S. Tchaplygin to certain non-linear differential equations of the second order. C. R. (Doklady) Acad. Sci. URSS (N.S.) 51, 497–499 (1946).

Let $y(x)$ be a solution of the equation $y''=f(x, y, y')$, such that $y(x_0)=y_0$, $y'(x_0)=y_0'$. The author shows that when $f=-y^3$ there exists a function $v(x)$ such that $v''>f(x, v, v')$, $v(x_0)=y_0$, $v'(x_0)=y_0'$, for which $v(x)-y(x)$ changes sign at a point arbitrarily close to x_0. This cannot happen if $f(x, y, y')$ is linear in y and y'. *J. E. Wilkins, Jr.* (Buffalo, N. Y.).

Source: Mathematical Reviews, Vol , No. 2

PETROV, B. N.

USSR/Electricity - Personalities

Dec 51

"Academician V. S. **Kulebakin** (His 60th Birthday)," V. A. Trapeznikov, M. P. Kostenko, B. N. Petrov, N. V. Goroknov, V. L. Lossiyevskiy, B. S. Sotskov, M. G. Chilikin, G. N. Petrov, A. N. Larionov, A. G. Iosif'yan, K. S. Bobov, D. A. Gorodetskiy

"Elektrichestvo" No 12, p 88

Kulebakin is very well known in the fields of elec machines, elec equipment, automatic control, and illuminating engineering and has specialized for many years in aviation elec equipment. A major general in the aviation engineering service, he was one of the founders of the All-Union Elec Eng Inst and the Inst of Automatics and Telemechan and has headed chairs at the Moscow Power Eng Inst imeni Molotov and the Air Force Eng Acad imeni Zhukovskiy.

201T87

PETROV, B.N., professor, otvetstvennyy redaktor.

[Collection of works on automatization and telemechanics; transactions of the first scientific and technical conference of young specialists of the Institute of Automatization and Telemechanics of the Academy of Sciences of the U.S.S.R.] Sbornik rabot po avtomatike i telemekhanike. Trudy pervoi nauchno-tekhnicheskoi konferentsii molodykh spetsialistov Instituta avtomatiki i telemekhaniki AN SSSR. [Otvetstvennyi redaktor B.N.Petrov] Moskva, Izd-vo Akademii nauk SSSR, 1953. 205 p. (MLRA 7:4)

1. Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.
(Automatic control) (Remote control)

PETROV, B.N.; TSYPKIN, Ya. Z.; KURAKIN, K.I.; TIKHONOV, V.I.; SIYITSYN, A.S.

Resolutions of the committee selected by the seminar on the theory of automatic control after discussing. V. V. Solodovnikov's book "Introduction to the statistical dynamics of automatic control systems". Avtom. i telem. 14 no.4:477 Jl-Ag '53. (MLRA 10:3)
(Automatic control)

PETROV, B.N.

SOLODOVNIKOV, V.V.; professor, doktor tekhnicheskikh nauk, redaktor;
AYZERMAN, M.A., doktor tekhnicheskikh nauk; BASHKIROV, D.A., kandidat
tekhnicheskikh nauk; BROMBERG, P.V., kandidat tekhnicheskikh nauk;
VORONOV, A.A., kandidat tekhnicheskikh nauk, dotsent; GOL'DFARB, L.S.,
doktor tekhnicheskikh nauk, professor; KAZAKEVICH, V.V., doktor tekh-
nicheskikh nauk; KRASOVSKIY, A.A., kandidat tekhnicheskikh nauk,
dotsent; LERNER, A.Ya., kandidat tekhnicheskikh nauk; LETOV, A.M.,
doktor fiziko-matematicheskikh nauk; professor; MATVEYEV, P.S.,
inzhener; MIKHAYLOV, F.A., kandidat tekhnicheskikh nauk; PETROV, B.N.;
PETROV, V.V., kandidat tekhnicheskikh nauk; POSPELOV, G.S., kandidat
tekhnicheskikh nauk, dotsent; TOPCHEYEV, Yu.I., inzhener; ULANOV,
G.M., kandidat tekhnicheskikh nauk; KHRAMOY, A.V., kandidat tekhni-
cheskikh nauk; TSYPKIN, Ya.Z. doktor tekhnicheskikh nauk, professor;
LOSSIYEVSKIY, V.L., doktor tekhnicheskikh nauk, professor, retsenzent;
TIKHONOV, A.Ya., tekhnicheskiy redaktor

[Fundamentals of automatic control; theory] Osnovy avtomaticheskogo
regulirovaniia; teoriia. Moskva, Gos. nauchno-tekhn. izd-vo mashino-
stroit. lit-ry, 1954. 1116 p. (MLRA 8:2)

1. Chlen-korrespondent AN SSSR (for Petrov, B.N.)
(Automatic control)

PETROV, B.N.

[illegible]

[illegible]

[illegible] [redacted] [illegible]

[illegible] Department [illegible] Academy [illegible] USSR

[illegible] AN [illegible]

[illegible] Report [illegible] the Theory of Automatic [illegible] results of research [illegible] the Theory of Machines and Mechanisms [illegible] Academy [illegible] USSR [illegible] and abstracts [illegible] Problems [illegible] Academy [illegible] USSR [illegible] and abstracts [illegible]

Petrov B.N.

4

621.3.078 : 061.3(47)

3637

Second All-Union Conference on the Theory of Automatic Regulation.—B. N. Petrov & B. N. Naumov. (*Bull. Acad. Sci. U.R.S.S., tech. Sci.*, Feb. 1954, No. 2, pp. 117-122. In Russian.) This report on the conference held in Moscow in 1953 includes brief notes on the 80 or so papers presented and on the exhibition of models and ancillary apparatus.

LB
4-7-55

PETROV, B.N.; NAUMOV, B.N.

Second All-Union conference on the theory of automatic control. Avtom. i telem. 15 no.1:90-96 Ja-F '54.
(Automatic control) (MLRA 10:3)

PETROV, B.N.; NAUMOV, B.N.

Scientific principles of automatic control (meeting on the theory of automatic controls). Vest.AN SSSR 24 no.3:88-94 Mr '54.

(MLRA 7:3)

1. Chlen-korrespondent Akademii nauk SSSR (for Petrov).

(Automatic control)

ZALMANZON, Lev Abramovich; CHERKASOV, Boris Aleksandrovich; PETROV, B.N., retsenzent; BODNER, B.A., professor, doktor tekhnicheskikh nauk, retsenzent; SOBOLEV, O.K., redaktor; BELITSKAYA, A.M., izdatel'skiy redaktor; ZUDAKIN, I.M., tekhnicheskiy redaktor

[Control of gas turbine and direct flow air-jet engines] Regulirovanie gazoturbinnykh i priamotochnykh vozdushno-reaktivnykh dvigatelei. Moskva, Gos. izd-vo obor.promyshl., 1956. 374 p. (MLRA 9:9)

1. Chlen-korrespondent Akademii nauk SSSR (for Petrov)
(Jet propulsion)

USSR/Processes and Equipment for Chemical Industries-- K-2
Control and measuring devices. Automatic regulation.

Abs Jour: Ref Zhur Khimiya No 3 1957, 10652

Author : Petrov, B. N., Petrov, V. V., and Ulanov, G. N.
Inst : Academy of Sciences USSR
Title : The Conference on Automatic Regulation Theory

Orig Pub. Vestn AN SSSR 1956, No 5, 60-62

Abstract: No abstract

Card 1/1

PETROV, B.N.

"Electric automatic control systems." A.A. Fel'dbaum. Reviewed by B.N. Petrov. Avtom.i telem.17 no.3:276-278 Mr '56. (MLRA 9:7)
(Fel'dbaum, A.A.)(Automatic control)

PETROV, B.N.

Automatic control of the future. Nauka i zhizn' 23 no.11:9-15 N '56.
(MLRA 9:11)

1. Chlen-korrespondent Akademii nauk SSSR.
(Automatic control)

PETROV, B.N.; PETROV, V.V., kandidat tekhnicheskikh nauk; ULANOV, G.M.,
kandidat tekhnicheskikh nauk.

Conference on the theory of automatic control. Vest.AN SSSR 26 no.8:
60-62 Ag '56. (MLRA 9:9)

1.Chlen-korrespondent AN SSSR (for Petrov, B.N.)
(Liblice, Czechoslovakia--Automatic control--Congresses)

PETROV, B. N

VIKHMAN, Viktor Semenovich, kandidat tekhnicheskikh nauk; [redacted] redaktor; KOCHENOV, M.I., kandidat tekhnicheskikh nauk, retsenzent; MODEL', B.I. tekhnicheskiy redaktor.

[Electronic automatic technical control of elements in machine manufacture) Elektroavtomatika tekhnicheskogo kontrolia izdelii mashinostroeniia. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 303 p. (MIRA 10:5)

1. Chlen-korrespondent Akademii nauk SSSR (for Petrov).
(Automatic control)
(Machinery industry)

TOPCHIYEV, A.V., akademik, glavnyy redaktor; PETROV, B.N., otvetstvennyy redaktor; AYZERMAN, M.A., redaktor; BARBOETEYE, S.I., redaktor; VASIL'YEV, B.V., redaktor; IVANOV, V.I., redaktor; KARAGOLIN, V.M., redaktor; KOGAN, B.Ya., redaktor; LETOV, A.M., redaktor; PORTNOV-SOKOLOV, Yu.P., redaktor; SOLODOVNIKOV, V.V., redaktor; ULANOV, G.M., redaktor; TSUPKIN, Ya.Z., redaktor; KRUTOVA, I.N., redaktor; ASTAF'YEVA, G.A., tekhnicheskiy redaktor

[A session of the Academy of Sciences of the U.S.S.R. on scientific problems in automatization of production, October 15-20, 1956, principal problems of automatic control] Sessiia Akademii nauk SSSR po nauchnym problemam avtomatizatsii proizvodstva, 15-20 oktiabria 1956 g.; osnovnye problemy avtomaticheskogo regulirovaniia i upravleniia. Moskva, 1957. 334 p. (MLRA 10:5)

1. Adakemiya nauk SSSR. 2. Chlen-korrespondent AN SSSR. (for Petrov)
(Automatic control)

SOV/124-[illegible]

Translation from: Referativnyy zhurnal, Mekhanika, [illegible]

AUTHORS: Petrov, B.N., Ulanov, G.M.

TITLE: Aspects of the Theory of Combined [illegible]
kombinirovannogo upravleniya)

PERIODICAL: Sessiya AN SSSR po nauchn. problemam [illegible]
va. Nauchno-tekhn. problemy avtomatiz. [illegible]
Moscow, AN SSSR, 1957, pp [illegible]

ABSTRACT: What is meant by [illegible] combined [illegible] system [illegible] closed-loop [illegible] an additional [illegible] complete [illegible] combined control [illegible] possible [illegible] same time [illegible] systems. Mathematical [illegible] of ε invariance in linear combined [illegible] monic-balance method is used to investigate [illegible] iance in sinusoidally perturbed [illegible] of invariance in a relay servo system [illegible] phase-plane method. Included is an example [illegible] the effect of invariance in a nonlinear automatic [illegible] by means of an electronic analog simulator [illegible]
[illegible]

Card 1/1

[illegible], Prof. Corr. Mem. [illegible]

"Basic Trends in the Development of the Theory of Automatic [illegible]."

paper read at the Session of the Acad. [illegible] on Scientific [illegible] of Automation of Production, [illegible] October 1956.
Avtomatika i telemekhanika, [illegible].

IVASHCHENKO, Nikolay Nikolayevich, kand. tekhn. nauk,; PETROV, B.N., retsenzent;
RUBINCHIK, A.M., kand. tekhn. nauk, red.; KOCHETOVA, G.Y., red. izd-va;
TIKHANOV, A.Ya., tekhn. red.

[Automatic control; theory and elements of systems] Avtomaticheskoe
regulirovanie; teoriia i elementy sistem. [Moskva] Gos. nauchno-
tekhn. izd-vo mashinostroit. lit-ry, 1957. 551 p. (MIRA 11:12)

1. Chlen-korrespondent AN SSSR (for Petrov).
(Automatic control)

KOLOSOV, S.P.; KOLPAKOVA, N.P.; SOKOLOV, N.I.; TER-AKOPOV, A.K.;
TISHCHENKO, N.M.; UDALOV, N.P.; PETROV, B.N., prof., red.;
YANOVSKIY, I.L., inzh., red.; ANIKINA, M.S., izdat.red.;
ROZHIN, V.P., tekhn.red.

[Design guide for elements and systems of automatic control; aid for course and degree work] Rukovodstvo po proektirovaniiu elementov i sistem avtomatiki; posobie po kursovomu i diplomnomu proektirovaniiu. Pod red. B.N.Petrova. Moskva, Gos.izd-vo obor.promyshl. No.3. 1959. 200 p. (MIRA 13:2)

1. Chlen-korrespondent Akademii nauk SSSR; Moskovskiy aviatsionnyy institut imeni Sergo Ordzhonikidze (for Petrov).
(Automatic control)

AGEYKIN, Dmitriy Ivanovich, prepodavatel'; BALASHOV, Mikhail Aleksandrovich, prepodavatel'; KOLOSOV, Sergey Petrovich, prepodavatel'; NEFEDOVA, Valentina Ivanovna, prepodavatel'; RESHETNIKOV, Yevgeniy Mikhaylovich, prepodavatel'; SOKOLOV, Nikolay Ivanovich, prepodavatel'; STROMILOV, Vasiliy Mikhaylovich, prepodavatel'; TISHCHENKO, Nikolay Mikhaylovich, prepodavatel'; UDALOV, Nikolay Petrovich, prepodavatel'; PETROV, B.N., prof., red.; ISTRATOV, V.N., kand.tekhn.nauk, dotsent, red.; SHEKHTMAN, E.A., izdat.red.; ROZHIN, V.P., tekhn.red.

[Manual for designing elements and systems of automatic control; a textbook for a course in designing] Rukovodstvo po proektirovaniiu elementov i sistem avtomatiki; posobie po kursovomu proektirovaniiu. Pod red. B.N.Petrova. Moskva, Gos.izd-vo obor. promyshl. Pt.2. 1959. 247 p. (MIRA 12:6)

1. Chlen-korrespondent AN SSSR (for Petrov). 2. Moskovskiy aviatsionnyy institut imeni Sergo Ordzhonikidze (for all except Istratov, Shekhtman, Rozhin).

(Automatic control)

[illegible]

Theory of Invariance [illegible]

COVERAGE The [illegible]
on the Theory of Invariance [illegible]
was called by the [illegible]
ances) and the Institut elektrotekhniki [illegible]
of the Academy of Sciences [illegible]
[illegible]
[illegible] systems designed on the basis of [illegible]
basis of maintaining the invariance [illegible]
[illegible]
[illegible]
by the conference that [illegible] and the
principle of invariance [illegible] and various
[illegible] the regu-
[illegible] reliabi-
[illegible] Automatic Con-
trol are meant [illegible] enkh-
enko [illegible] and
P.I. [illegible]

Card 2/3

PHASE I BOOK EXPLOITATION SOV 4359

Trud i tekhnika v semiletke (Labor and Engineering in the Seven-Year Plan) Moscow, Profizdat, [illegible]. 30[illegible] p. (Series: Massovaya biblioteka rabochego) 10,000 copies printed.

Compiler: S. G. Krylov; Ed.: A. V. Anisimov; Tech. Ed.: A. A. Golichenkova.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book is a collection of 19 articles dealing with the achievements and progress of the Seven-Year Plan in branches of the Soviet economy and in science. Attention is given to power plant construction, machine building, cybernetics, electrification, transportation, prospecting, steel production, production of consumer goods, mechanization of agriculture, and chemistry. Suggestions for further progress are made. No personalities are mentioned. There are no references.

Prokopovich, A. Ye. [Deputy Director, Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov (Experimental Scientific Research Institute of Metal-Cutting Machine Tools)] From Automatic Machine Tools to Automatic Production Lines, Shops, and Factories 59

Kobrinskiy, A. Ye. [Doctor of Technical Sciences] Program Control of Machine Tools [illegible]

Solodovnikov, V. V. [Doctor of Technical Sciences, Professor] Cybernetics 119

Petrov, B. N. [Corresponding Member, Academy of Sciences USSR] Automation in the Near Future 127

Gamburg, D. Yu. [Candidate of Chemistry] Chemistry Today and Tomorrow 142

Fedulin, A. S. [Candidate of Technical Sciences] Foundation of Industry 166

Steklov, V. Yu. [Deputy Director, Moscow Branch of the "Orgenergostroy" Institute] The Seven Year Plan and the Electrification of the USSR 189

Chukhanov, Z. F. [Corresponding Member, Academy of Sciences USSR] On Comprehensive Utilization of Fuel 207

Borisov, M. I. [Chairman, Central Committee, Trade Union of Workers in the Building Materials Industry] The Conveyor in a Large Construction Project 221

Chekanov, A. A. [Candidate of Technical Sciences] Welding Belongs to the Future 252

Shcherbakov, D. I. [Member, Academy of Sciences USSR] What Is New in Prospecting for Mineral Resources 267

Petrov, N. A. [Candidate of Technical Sciences, Deputy Chairman, State Scientific and Technical Committee, Council of Ministers of the USSR] New Engineering for the Creation of Plenty 290

[illegible] S. S. [illegible] at the Automation Laboratory [illegible] Scientific Research Institute [illegible] For the Welfare of the People 306

[illegible] Scientific Research Institute [illegible] [illegible]

[illegible] Agricultural Sciences [illegible] Agriculture 329

[illegible] V. V. [illegible] Academy of Sciences USSR [illegible] [illegible]

Explanation of Russian Terms [illegible] Occurring in the Book 363

AVAILABLE: [illegible]

Card [illegible] [illegible]

PETROV, B. N.

"The Principle of Invariance and the Conditions of its Employment in the Computation of Linear and Nonlinear Systems."

paper presented at the First International Congress of the International Federation on Automatic Control (IFAC), Moscow , 27 June - July 1960.

KATYS, Georgiy Petrovich; PETROV, B.N., otv.red.; KOTOV, V.A., red.izd-va; GUS'KOVA, O.M., tekhn.red.

[Automatic control of nonstationary fields] Nekotorye voprosy avtomaticheskogo kontrolia nestatsionarnykh polei. Moskva, Izd-vo Akad.nauk SSSR, 1960. 222 p. (MIRA 13:7)

1. Chlen-korrespondent AN SSSR (for Petrov).
(Electron optics) (Automatic control)

KOLPAKOVA, N.P., kand. tekhn. nauk [translator]; UKOLOV, I.S. [translator];
PETROV, B.N., red.; YAKIMENKO, L.P., red.; POTAPENKOVA, Ye.S., tekhn.
red.

[Automatic optimization of control systems] Avtomaticheskaia optimizatsiia upravliaemykh sistem. Moskva, Izd-vo inostr. lit-ry, 1960. 239 p. (MIRA 14:7)

1. Chlen-korrespondent AN SSSR (for Petrov)
(Automatic control)

BALASANOV, Georgiy Nikitovich; **PETROV, B.N.**, akad., red.; **ANDREYENKO, Z.D.**, red.; **MAZEL'**, Ye.I., tekhn.red.

[Principles of introducing automatic control of industrial processes in the hydrometallurgy of rare and radioactive metals] Osnovy avtomatizatsii tekhnologicheskikh protsessov gidrometallurgii redkikh i radioaktivnykh metallov. Pod red. B.N.Petrova. Moskva, Gos.izd-vo lit-ry v oblasti atomnoi nauki i tekhniki, 1960. 294 p. (MIRA 14:4)

(Hydrometallurgy) (Automatic control)
(Rare earth metals) (Radioactive substances)

SOLODOVNIKOV, V.V., prof., doktor tekhn.nauk, red.; BOGOLYUBOV, N.N., akademik, red.; ISHLINSKIY, A.Yu., akademik, red.; KAZAKEVICH, V.V., prof., doktor tekhn.nauk, red.; LYAPUNOV, A.A., prof., doktor fiz.-mat.nauk, red.; PETROV, B.N., red.; POPOV, Ye.P., prof., doktor tekhn.nauk, red.; POSPELOV, G.S., prof., doktor tekhn.nauk, red.; RYABOV, B.A., prof., doktor tekhn.nauk, red.; ANISIMOV, B.V., dotsent, kand.tekhn.nauk, red.; PETROV, V.V., dotsent, doktor tekhn.nauk, red.; PLOTNIKOV, V.N., dotsent, kand.tekhn.nauk, red.; USHAKOV, V.B., doktor tekhn.nauk, red.; POLYAKOV, G.F., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Automatic control and computer engineering] Avtomaticheskoe upravlenie i vychislitel'naia tekhnika. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. No.3. 1960. 489 p. (MIRA 13:7)

1. Chlen-korrespondent AN SSSR (for B.N.Petrov).
(Automatic control) (Electronic calculating machines)

PETROV, B.N.(Moskva)

Problems of the theory of automatic control. Izv.AN SSSR. Otd. tekh.nauk. Energ. i avtom. no.5:68-76 S-O '60. (MIRA 13:11)
(Automatic control)

S/103/60/021/05/13/011
B007/B011

AUTHORS: Topchiyev, A. V., Academician, Vice President of the Academy of Sciences USSR, Fedorov, Ye. K., Corresponding Member of the AS USSR, Acting as Senior Academic Secretary of the Presidium of the Academy [illegible]
Dorodnitsyn, A. A., [illegible]
Members of the Commission [illegible]

TITLE: Information
Byuro prezidiuma Akademii nauk SSSR [illegible] Office of the Presidium of the Academy of Sciences [illegible]
Resolution of February [illegible] No. [illegible] Moscow

PERIODICAL: Avtomatika i telemekhanika, [illegible] Vol. 21, No. [illegible]
pp. 695 - 696

TEXT: The paper under review contains the [illegible] text of [illegible] resolution. These consist [illegible] Finance and its [illegible] automatic [illegible] (Kiyev [illegible] and the judgement [illegible] commission on [illegible]

Information
Byuro prezidiuma A [illegible]
(Office of the Presidium [illegible]
Sciences of the USSR [illegible]
Resolution of February [illegible]
Moscow

S/103/60/[illegible]
B0[illegible]

Commission on the theory of invariance [illegible] After hearing [illegible] A. A. Dorodnitsyn's communication [illegible] AS SSSR (Commission of the Presidium [illegible] adopted on the theory of invariance [illegible] ences of October 26 [illegible] Kiyev [illegible] Byuro [illegible] (Office of the Presidium [illegible] to approve the judgement [illegible] Commission [illegible] and to order [illegible] estimation. The [illegible] Academician A. A. Dorodnitsyn [illegible] Ishlinskiy, and Corresponding Member [illegible] appointed by Academician A. V. Topchiyev, Vice President [illegible] on October 26, [illegible] examined the [illegible] tional resolution of October [illegible]

Information
Byuro prezidiuma Akademii nauk [illegible]
(Office of the Presidium of the [illegible]
of Sciences of the USSR
Resolution of February [illegible]
Moscow

S/103/60/021/05/[illegible]
B007/B011

of the AS USSR of April [illegible] sion of [illegible] the [illegible] on. The [illegible] Profes[illegible] of the AS [illegible] S. A. [illegible] and Corresp[illegible] Member of the A[illegible] reached by the [illegible] Presidium of the A[illegible] Pa[illegible] [illegible] details [illegible]

PETROV, B.N., akademik

Broad prospects for the future. Nauka i zhizn' 27 no.10:8 O '60.
(MIRA 13:10)

1. Predsedatel' Komiteta po teorii, Mezhdunarodnaya federatsiya po avtomaticheskomu upravleniyu.
(Cybernetics)

TRAPEZNIKOV, V.A., akademik, glav. red.; AYZERMAN, M.A., doktor tekhn. nauk,
red.; AGEYKIN, D.I., kand. tekhn. nauk, red.; ARTOBOLEVSKIY, I.I.,
akademik, red.; BATRACHENKO, L.P., inzh., red.; VORONOV, A.A., doktor
tekhn. nauk, red.; GAVRILOV, M.A., doktor tekhn. nauk, red.; DIKUSHIN,
V.I., akademik, red.; KARIBSKIY, V.V., kand. tekhn. nauk, red.; KOGAN,
B.Ya., kand. tekhn. nauk, red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S.,
akademik, red.; LERNER, A.Ya., doktor tekhn. nauk, red.; LETOV, A.M.,
kand. tekhn. nauk. red.; MEYEROV, M.V., doktor tekhn. nauk, red.; PET-
ROV, B.N., akademik, red.; PUGACHEV, V.S., doktor tekhn. nauk, red.;
SOTSKOV, B.S., red.; STEFANI, Ye.M., kand. tekhn. nauk, red.; KHRAMOY,
A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof.,
red.; CHELYUSTKIN, A.O., kand. tekhn. nauk, red.; CHILIKIN, M.G., doktor
tekhn. nauk, red.; NAUMOV, B.N., kand. tekhn. nauk, red.; KASHINA, P.S.,
tekhn. red.

[Transactions of the International Federation of Automatic Control,
1st International Congress, Moscow, 1960] Trudy I Mezhdunarodnogo kon-
gressa Mezhdunarodnoi federatsii po avtomaticheskomu upravleniiu. Mo-
skva, Izd-vo Akad. nauk SSSR. Vol.2. [Theory of discrete systems,
optimal systems, and adaptive automatic control systems] Teoriia diskret-
nykh, optimal'nykh i samonastraivaiushchikhsia sistem. 1961. 996 p.
(MIRA 14:9)

1. International Federation of Automatic Control, 1st International
Congress, Moscow. 1960. 2. Chlen-korrespondent AN SSSR (for Sotskov)
(Automatic control)

BALASHOV, M.A.; VORONKOV, B.S.; YELAGIN, Ye.N.; KISELEV, L.N.; KOLOSOV, S.P.; LEONT'YEVA, V.P.; NEFEDOVA, V.I.; STOGNILOV, V.M.; SOKOLOV, N.I.; TISHCHENKO, T.M.; UDALOV, I.F.; PETROV, B.N., akademik, red.; GRIGORASH, K.I., red. izd-va; ROZHIN, V.P., tekhn. red.

[Handbook on the design of components and systems of automatic control; a manual for the preparation of course and diploma projects] Rukovodstvo po proektirovaniiu elementov i sistem avtomatiki; posobie po kursovoru i diplomnomu proektirovaniiu [By] M.A.Balashov i dr. Pod red. B.N.Petrova. Moskva, Gos. nauchno-tekhn. izd-vo Oborongiz. No.4. 1961. 311 p. (MIRA 15:3)

1. Moscow. Aviatsionnyy institut imeni Sergo Ordzhonikidze.
(Automatic control) (Electronics)

16.4000 (1031, 1132, 1329)
13.2520

31324
S/569/61/001/000/009/019
D274/D305

AUTHOR: Petrov, B. N. (USSR)

TITLE: The invariance principle and its conditions of applicability to linear and nonlinear systems

SOURCE: International Federation of Automatic Control. 1st Congress Moscow 1960. Teoriya nepreryvnykh sistem. Spetsial'nyye matematicheskiye problemy. Moscow, Izd-vo AN SSSR, 1961. Trudy, v. 1, 259-275

TEXT: The system

$$a_{i1}x_1 + a_{i2}x_2 + \cdots + a_{in}x_n = f_i(t) \qquad (1)$$

is considered, where $a_{ij} = A_{ij} + B_{ij} + C_{ij}$ are polynomials with constant coefficients; $f_i(t)$ is an analytic function. The condition for absolute invariance (independence) of the variable x with respect to $f_i(t)$ is

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$$\Delta_{ij} \equiv 0 . \quad (2)$$

(Δ_{ij} being the principal minor of the system determinant Δ). The following criterion of realizability of invariance conditions is formulated: The necessary condition for the realizability of the invariance conditions of x_j with respect to the external disturbance $f_i(t)$ is the identical equality of the set of solutions to the equations of initial system and of the system which is open loop at the point where x_j is measured; this—in conjunction with the fulfilment of the invariance conditions and identical vanishing of all the other disturbances and zero initial conditions. With respect to the variable x_j, the external disturbances can be divided into two classes: (a) those for which the invariance conditions can be fulfilled and (b) those for which they cannot be fulfilled. In order to find all the solutions to a system of linear differential equations with constant coefficients, the initial system of equations is transformed to Hermite's canonical form, and thereupon the solution is successively found

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(i.e., from the first solution one finds the second, etc.). The obtained canonical system is

$$\left.\begin{array}{lcl} \overset{*}{a}_{11}x_1 & = & \sum\limits_{j=1}^{n} \lambda_{1j}f_j(t) \\ \overset{*}{a}_{21}x_1 + \overset{*}{a}_{22}x_2 & = & \sum\limits_{j=1}^{n} \lambda_{2j}f_j(t)\ , \\ \dots\dots\dots & & \dots\dots\dots \\ \overset{*}{a}_{n1}x_1 + \overset{*}{a}_{n2}x_2 + \dots + \overset{*}{a}_{nn}x_n & = & \sum\limits_{j=1}^{n} \lambda_{nj}f_j(t)\ . \end{array}\right\} \qquad (4)$$

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This yields

$$\left.\begin{array}{l}
(\lambda_{11}a_{11} + \lambda_{12}a_{21} + \dots + \lambda_{1n}a_{n1})x_1 = \lambda_{11}f_1(t) \\
(\lambda_{21}a_{11} + \lambda_{22}a_{21} + \dots + \lambda_{2n}a_{n1})x_1 + r_{22}x_{22} = \lambda_{21}f_1(t) , \\
\dots\dots\dots\dots\dots\dots\dots\dots\dots\dots \\
(\lambda_{n1}a_{11} + \lambda_{n2}a_{21} + \dots + \lambda_{nn}a_{n1})x_1 + r_{nn}x_n = \lambda_{n1}f_i(t) .
\end{array}\right\} \quad (10)$$

In order to ascertain whether the above invariance criterion is satisfied, the solutions of system (10) are compared with the solutions to the open-loop system

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$$\left.\begin{array}{l} \lambda_{11}a_{11}x_1 = \lambda_{1i}f_i(t) , \\ \lambda_{21}a_{11}\bar{x}_1 + r_{22}\bar{x}_2 = \lambda_{2i}f_i(t) , \\ \dots\dots\dots\dots\dots\dots \\ \lambda_{n1}a_{11}\bar{x}_1 + r_{nn}\bar{x}_n = \lambda_{ni}f_i(t) . \end{array}\right\} \qquad (11)$$

It was found that for $i = 1$ the solutions are entirely different; hence, the invariance conditions are not realizable, whereas for $i \neq 1$ the solutions to the two systems (10) and (11) are identical; hence, the invariance conditions can be realized. Transfer function of open-loop system as related to external disturbance, and the two-loop principle: The above realizibility-criterion can be also applied if the operator method, based on the Laplace transform is used. The Laplace transform of the open-loop system is

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$$a_{i1}X_1(s) + a_{i2}X_2(s) + \dots + a_{in}X_n(s) = F_i(s)\,, \qquad i = 1,2,\dots,n \;. \tag{14}$$

The transfer function of the open-loop system with respect to one of the disturbances is defined as

$$V_{fi}(s) = \frac{x_1(s)}{F_i(s)} = \frac{\Delta_{1i}}{\Delta_p} \;.$$

As before, the two cases $i = 1$ and $i \neq 1$ are considered. From an analysis of the transfer function, it follows that this function should represent the difference of two transfer functions at least. Hence, a dynamic system should have at least two loops between the point of application of the external disturbance and the point where the variable is measured which has to be kept invariant to that disturbance Further, stability is analyzed when the invariance conditions are fulfilled. It is found that, if the initial characteristic equation and the degenerate characteristic equation have the same degree, stability can be ensured. Invariance

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principle in nonlinear systems: In nonlinear systems which belong to two-loop systems, nonlinearities and variable parameters in any elements of the system, except the parallel loops, do not affect the fulfilment of the invariance conditions. Further, if a nonlinear element is present in one of the parallel loops, its effect can be compensated by introducing nonlinear feedback into that loop. Conclusions: An analysis of the systems for which the invariance conditions can be fulfilled shows that these are two-loop or multi-loop systems. Nonlinearities and variable parameters are either not effective or can be compensated. The fulfilment of the invariance conditions enhances considerably system performance. In the discussion, A. Yu. Ishlinskiy considered the complete compensation of external disturbances in gyroscopic systems. There are 3 figures and 12 Soviet-bloc references.

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E140/E463

16.8000(1031,1121,1132)

AUTHORS: Petrov, B.N. and Starikova, M.V. (Moscow)

TITLE: Investigation of self-oscillation in automatic control systems with logical devices

PERIODICAL: Izvestiya Akademii nauk SSSR, Otdeleniye tekhnicheskikh nauk, Energetika i avtomatika, 1961, No.3, pp.3-13

TEXT: The article considers automatic control systems of high order, containing logical devices for processing the signals obtained from the controlled object. It is assumed that the logical device processes two input signals, each taking on three values (+1, 0, -1), and yielding a single discrete output signal for activizing the controller. Such a system is shown in Fig.1, where 1 - the regulator, 2 - the regulated object, 3, 5 - linear amplifiers, 4, 6 - nonlinear devices with characteristics shown at the bottom left and the bottom right parts of the figure, 7 - the logical device, 8 - the servomotor; α is an intermediate point in the object where a lead signal is obtained, β is the point where the error signal is obtained, corresponding to the discrete functions U_x and U_y respectively, and U is the output from the logical device. The main purpose of the

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logical device is to determine whether the lead signal and the error signal have identical or opposite signs and to generate a corresponding signal for the servomotor. For an output signal consisting of five discrete values ($\pm U_1$, $\pm U_2$, 0; $U_1 > U_2$), the functional table is given by Table 1. It is desirable that the phase shift between the x and y signals be in the range $0 < \varphi \leqslant 90°$. An elementary discussion is given on the realization of Table 1 by contact networks, using simple Boolean algebra. Oscillations in the system are examined by the method of harmonic linearization of the nonlinearity (expansion in series and retention of first term). The coefficients of harmonic linearization are functions of the lead angle φ, the parameters of the logical device, the amplitude and frequency of oscillation. The characteristic equation for self-oscillation of such a system will be an equation with constant coefficients. The behaviour of the linearized system at the stability boundary can be found by a method of Ye.P.Popov and I.P.Pal'tov (Ref.2: Approximate methods for the investigation of nonlinear automatic systems. Fizmatgiz, 1960). The method given in the paper can also be used for logical

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devices with inputs obtained from the error and feedback signals, or other such combinations. It can also be extended to systems containing logical devices with three input coordinates and a single output. There are 4 figures, 4 tables and 7 Soviet references.

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Table 1.

U_x	0	0	0	+1	+1	+1	−1	−1	−1
U_y	0	+1	−1	0	+1	−1	0	+1	−1
U	0	U_1	$-U_1$	U_2	U_1	$-U_2$	$-U_2$	$+U_2$	$-U_1$

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PETROV, B.N.; SOTSKOV, B.S.; LARIONOV, A.N.; CHILIKIN, M.G.;
SYROMYATNIKOV, I.A.; BLAGONRAVOV, A.A.; KRUZHILIN, G.N.;
IVAKHNENKO, [illegible]; [illegible], V.D.; CHELYUSTKIN, A.B.;
DROZDOV, N.G.; [illegible], I.I.

Seventieth birthday of Viktor Sergeevich Kulebakin. Elektrichestvo no.10:90-91 O '61. (MIRA 14:10)
(Kulebakin, Viktor Sergeevich, 1891-

PETROV, B.N.; VORONKOV, B.S.; KOLPAKOVA, N.P.

Review of A. A. Sheviakov's book "Automatic control of aviational power systems." Avtom. i telem.22 no.4:556-557 Ap '61. (MIRA 14:4)

(Airplanes--Electronic equipment)(Airplanes--Engines)
(Sheviakov, A.A.)

STARIKOVA, M.V.; PETROV, B.N., akademik, red.; BARANOVA, Z.S., inzh., red.; EL'KIND, V.D., tekhn. red.

[Self-oscillations and slippage conditions in automatic regulation and control systems] Avtokolebaniia i skol'ziashchii rezhim v sistemakh avtomaticheskogo regulirovaniia i upravleniia. Pod red. B.N.Petrova. Moskva, Mashgiz, 1962. 194 p. (MIRA 15:9)

(Automatic control)

KATYS, Georgiy Petrovich; PETROV, B.N., akademik, otv.red.; KOTOV, V.A., red.izd-va; PRUSAKOVA, T.A., tekhn.red.; GOLUB', S.P., tekhn.red.

[Automatic control of nonstationary parameters and parametric fields] Avtomaticheskii kontrol' nestatsionarnykh parametrov i parametricheskikh polei. Moskva, Izd-vo Akad.nauk SSSR, 1962. 471 p. (MIRA 15:2)

(Automatic control)

ORSHANSKIY, D.L., gl. red. ARUTYUNOV, K.B., red.; VORONOV, A.A., red.; KARANDEYEV, K.B., red.; KARIBSKIY, V.V., red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S., red.; LOGINOV, I.I., red.; LUKIN, V.I., red.; MALOV, V.S., red.; PAVLENKO, V.A., red.; PETROV, B.N., red.; RAKOVSKIY, M.Ye., red.; SMAGLY, L.V., red.; SMIRNOV, A.D., red.; SOTSKOV, B.S., red.; STEFANI, Ye.P., red.; TRAPEZNIKOV, V.A., red.; TSAREVSKIY, Ye.N., red.; LEONOVA, Ye.I., tekhn. red.

[EIKA; encyclopedia of measurements, control and automation] EIKA; entsiklopediia izmerenii kontrolia i avtomatizatsii. Moskva, Gosenergoizdat. No.1. 1962. 243 p.

(MIRA 16:3)

Instruments) (Automation) (Mensuration)

PETROV, B. N.; ULANOV, G. M.; YEMEL'YANOV, S. V.

"Invariancy and Optimization in Automatic Systems with Nonflexible and Variable Structure.

Paper to be presented at ehe IFAC Congress held in Basel, Switzerland, 27 Aug to Sep 63

KATYS, G.P.; PETROV, B.N., akademik, red.; BARANOVA, Z.S., inzh., red.izd-va; S[illegible]LOVA, T.F., tekhn. red.

[Methods and systems of automatic control of nonstationary parameters and parametric fields] Metody i sistemy avtomaticheskogo kontrolia nestatsionarnykh parametrov i parametricheskikh polei. Pod red. B.N.Petrova. Moskva, Nauka, [illegible]. 378 p. (MIRA [illegible])

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AUTHORS: Petrov, B. N. (Academician); Vernov, S. N. (Corr. member, Academy of Sciences SSSR); Li[illegible]nson, D. Ya. (Candidate of Technical Sciences)

TITLE: Applications of Mössbauer effect 2

SOURCE: AN SSSR. Vestnik, 33 no. 7, 1963, 40-43

TOPIC TAGS: radiation, recoil, resonance, Doppler shift, crystal lattice

ABSTRACT: Recently Mössbauer discovered a new aspect of emission and scattering of gamma rays by nuclei in solids. A certain fraction of these rays of the nuclei of the solid is emitted without individual nuclear recoil. Instead, the recoil momentum is delivered to the crystal lattice as a whole, resulting in negligible Doppler shift. The most significant effect of this Mössbauer radiation is the extremely precise resonance line in the emission or absorption spectrum. For example, the 14.4-kev gamma ray without recoil by 0.1-microsecond Fe^{57} in metallic iron has been the most precisely defined electromagnetic frequency yet discovered. The longer the half-life of a nucleus, the sharper becomes the resonance curve. A whole series of unique applications can be foreseen for the applications of this principle. In physics, this effect may be useful in obtaining a better insight into crystal lattice vibrations, metallic superconductivity, and relativistic effects. In chemistry,

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one may study molecular structures, the hyperfine splitting due to quadrupole-magnetic field interactions, and isomer chemistry. Finally, in automation the Mössbauer effect could be useful in controlling very small relative movements and complex chemical reactions and in constructing devices to obtain and process information.

ASSOCIATION: none

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