25**7**57

S/024/61/000/001/011/014 E035/E117

A Device for Scanning the Edges of Patterns

followed the dots when they were moved. The scanner was originally designed for use with a quasi-topological device for reading Russian letters; but it could also be useful in a number of other fields, notably those of measuring geometrical drawings and the transmission of pictures. Acknowledgements are made to A.A. Kharkevich for his interest

in the work.

There are 5 figures and 6 references: 1 Soviet and 5 English.

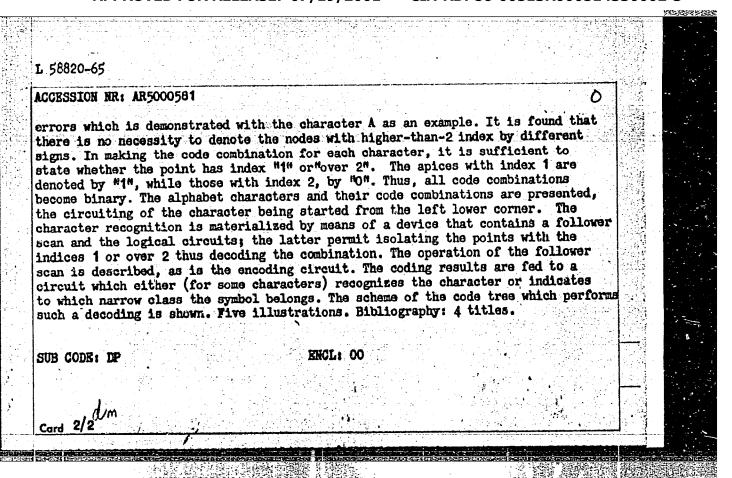
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SUBMITTED: May 27, 1960

Card 4/5

CIA-RDP86-00513R000514330002-3" APPROVED FOR RELEASE: 07/19/2001

GG/BB EWT(d)/T/EED-2/EWP(1) Pq-4/Pg-4/Pk-4 IJP(c) L 58820-65 S/0271/64/000/009/B043/B043 ACCESSION NR: AR5000581 681.142.624 SOURCE: Ref. zh. Avtomat., telemekh. i vychisl. tekhn. Sv. t., Abs. 9B258 ORIOU AUTHOR: Garmash, V. A.; Pereversey, V. S.; Tsirlin, V. M. TITLE: Device for automatic recognition of printed characters CITED SOURCE: Sb. Primeneniye tekhn. sredstv i programmir. obuch. v sredn. i vyssh. shkole. T. 1, M., Akad. ped. nauk RSFSR, 1963, 295-300 TOPIC TAGS: pattern recognition, character recognition, Russian letter recognition TRANSLATION: A device is proposed which permits recognizing printed and typed characters. The problem of character recognition is reduced to establishing the homeomorphism between the exposed pattern and a pattern of the perfect symbols by comparing the indices of corresponding spices. The point index means the number of branches that converge in it. The Russian alphabet characters, excluding  $\phi$ , are graphs without internal apices and branches. A rule is given for consecutive determination of indices of all graph nodes which permits obtaining a set of numbers (indices of the nodes passed); the set represents a code of the graph in question. The character A is considered as an example. The index-2 node is unfit for pattern classification, because this index may result only in additional Card 1/2



LEBSOEV, Dmitriy Savel'yevich; TSUKKERMAN, 11-ya Ioannovich;

GAMMASH, V.A., retaenzont; FROIDCHEIE, V.G.; nauchin, red.,

RASKINA, T.D., red.

[Television and information theory] Televidence i teorila
informatsii. Moskva, Energiia, 1965. 218 p.

(MIRA 18:4)

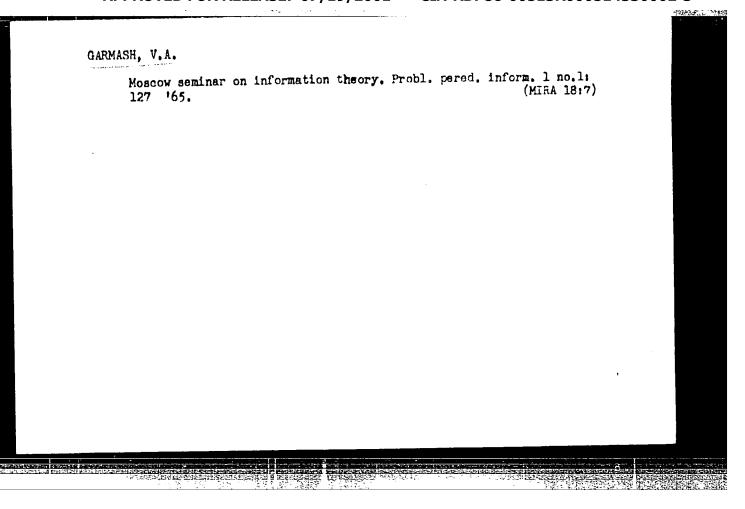
ROGINSKIY, V.N., doktor tekhn. mauk, otv. red.; GARGASH, V.A., kand. tekhn. nauk, zam. otv. red.

**《1988年》(李明) 建** 

[Control and switching systems] Sistemy upravlenia i kommutatsii. Moskva, Nauka, 1965. 136 p. (MIRA 18:9)

1. Akademiya nauk SSSR. Institut problem peredachi informatsii.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"



TUMANCYSKIY, M.N., prof.; GARMASH, V.Ya.

Ultrasonic cardiography. Sov. med. 28 no.5:29-33 My '65. (MIKA 18:5)

Kafadra cospital'noy terapil (zav. - prof. M.N.Tumanovskiy)

Voronezhskogo meditsinskogo instituta.

SOCHIVKO, Vladimir Petrovich; GARMASH, V.A., red.

[Electrical modeling of neurons] Elektricheskie modeli
neironov. Moskva, Energiia, 1965. 87 p. (Biblioteka po
avtomatike, no.148)

(MIRA 19:1)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

31996-66 ENT(d)/T/ENP(1) IJP(c) UR/0030/66/000/002/0152/0152 AP6008764 SOURCE CODE: ACC NR: Garmash, V. A. (Candidate of technical sciences) AUTHOR: TITLE: Studies in coding AN SSR. Vestnik, no. 2, 1966, 152 SOURCE: TOPIC TAGS: information, theory, coding theory, Second All Union Conference ABSTRACT: The Second All-Union Conference on Coding Theory and its applications organized by the Scientific Council on the Complex
Problem of Cybernetics, the Institute of Problems of Information
Transmission of the Academy of Sciences USSR, the Institute of Cybernetics of the Azerbaydzhan Academy of Sciences, and the All-Union Scientific-Technical Society of Radio Engineering and Electronics imeni A. S. Popova, held in Baku from 9 to 12 October, 1965 was attended by some 310 Soviet specialists in the theory of information transmission and similar fields. One hundred and twelve papers were presented dealing with the mathematical theory of constructing the interference-

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

free codes, theoretical and experimental studies of the statistical characteristics of codes and information transmission channels, methods

Card 1/2

L 31996-66 ACC NR: AP6008764 of information transmission, re-interrogative communication systems, communication sources, methods of separating signals from noise, communication channels with quantum effects taken into account, the application of digital computers to coding and decoding of information, error-correcting codes for increasing the reliability of computers, and methods of coding theory for increasing the structural reliability of automata. At the plenary sessions, the papers by G. P. Tartakovskiy entitled "On optimum separation of information with the Gaussian a priori distribution from random signals" and by Ye. T. Maronchik entitled "On threshhold and majority decoding" were presented. It was stressed in the resolution approved by the conference that in addition to the traditional trends in coding and information transmission theory, attention must be paid to new trends, such as development of new coding methods for realizing simple decoding schemes, for studying the transmission and receiving of signals with noise in the synchronization channel taken into account, utilization of the methods of information theory in pattern recognition and in studies of the problem of increasing the reliability of automata. The importance of increasing the volume of experimental studies of communication channels and simu-[LK] lation of communication systems is stressed. 09/ SUBM DATE: none/ SUB CODE:

s/020/60/135/004/033/037 B004/B055

AUTHORS:

Rakhovskiy, V. I., Lyubimov, A. P., and Garmash, V. M.

TITLE:

Penetration of Silver Into Tungsten

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 4,

pp. 906 - 908

TEXT: The authors discuss the problem of the strength of power current terminals. Since a high melting point and good thermal conductivity are desirable for such contacts, repeated attempts have been made to use alloys on the base of silver and tungsten. In this connection, penetration of Ag into W plays an important role. Tungsten plates (0.015x0.4x1.2 cm)

were annealed in liquid silver containing radioactive Ag 110. The quartz crucible with the sample was placed in a tube which was evacuated to 10-4 mm Hg filled with He up to somewhat over 1 atm, and annealed at 1000° C for 8, 16, and 24 hours, and at 1080° C for 4, 8, 12, and 16 hours. Temperature was controlled by a chromel-alumel thermocouple and a JITE-1

Card1/3

Penetration of Silver Into Tungsten

S/020/60/135/004/033/037 B004/B056

(PPTV-1) potentiometer, and regulated by an  $\pi$ ATP-1 (LATR-1) type autotransformer. Then, the tungsten plate was extracted from the liquid Ag, adhering Ag was etched away by means of dilute HNO<sub>3</sub> at 40° C in a

TC-15M (TS-15m) type thermostat, and the activity of W was determined by BCT (VSP) counter. At both temperatures, a linear increase in activity with the annealing time was observed. From this it was concluded that it is not diffusion which takes place but another penetration process whose rate was constant and equal to 7.62·10<sup>-8</sup> g/cm<sup>2</sup>·sec at 1080° C. The activation energy of this process was 825 kcal/g-atom. The observed sharp decrease in strength of tungsten indicated that liquid silver etches away the grain boundaries of tungsten, and that silver atoms fill the "pores". According to experimental data, such a process would depend linearly on time. There are 2 figures and 3 references: 1 Soviet and 2 German.

Card 2/3

Penetration of Silver Into Tungsten

S/020/60/135/004/033/037 B004/B056

Vsesoyuznyy elektrotekhnicheskiy institut im. V. I. Lenina (All-Union Electrotechnical Institute imeni

V. I. Lenin). Moskovskiy institut stali im. I. V. Stalina (Moscow Steel Institute imeni I. V. Stalin)

PRESENTED:

ASSOCIATION:

June 22, 1960 by P. A. Rebinder, Academician

SUBMITTED:

June 14, 1960

Card 3/3

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\$/137/62/000/004/042/201 A006/A101

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AUTHORS:

Lyubimov, A.P.; Garmash, V.M.; Rakhovskiy, V.I.

TITLE:

Investigating the heat capacity of tungsten and copper-base cermet

compounds

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. -, 1962, 41, abstract 4G269

("Poroshk. Metallurgiya", 1961, no. 5, 20 - 26, English summary)

A radiation calorimeter was used to measure the heat capacity of TEXT: Cu-W compounds during the cooling process. The specimens were heated in a vacuum (about  $10^{-6}$  mm Hg) to 850 - 9000C (sintering in the solid phase) and to 1,150 - 1,250°C (sintering in the liquid phase); they were held at these temperatures for 15 min and cooled at a rate of 0.75 - 1.5 degrees/sec. In the case of Cu and Cu-W the "heat capacity-temperature" curves showed a number of maxima after sintering, whose appearance is connected with defects in the crystal lattice of the powders. An anomalous behavior was also observed in compounds W +25% Cu, sin-tered at 1,150 - 1,250°C (heat capacity maxima were located at 410, 660, 910°C).

[Abstracter's note: Complete translation]

R. Andriyevskiy

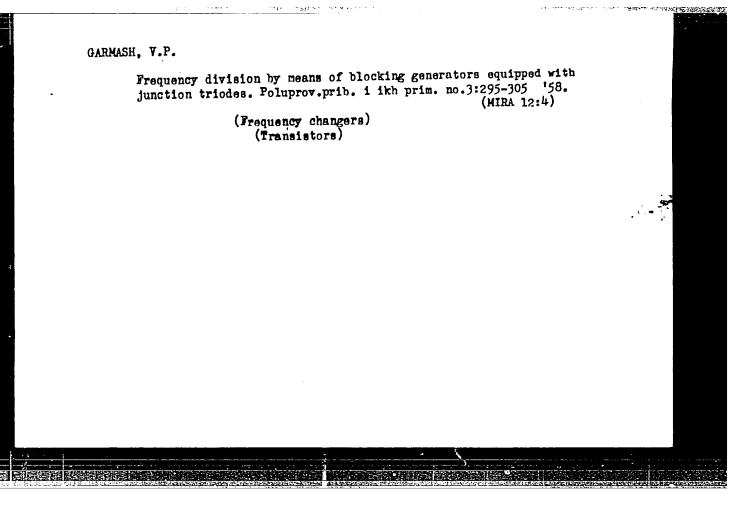
Card 1/1

Testing the SGL photographic deflection measuring device in crooked boreholes. Razved. i okh. nedr 27 no.4:47-49 Ap '61.

(MIRA 14:5)

1. Lebedinskiy rudnik.

(Lebedi region (Kursk Magnetic Anomaly)—Mine drainage)



AUTHOR: Garmash, V. P.  TITLE: Highly-stable transistorized generators  SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 7A74  REF SOURCE: Tr. uchebn, in-tov svyazi. M-vo svyazi SSSR, vyp. 27, 1965, 61-68  TOPIC TAGS: generator, transistorized generator  ABSTRACT: Special diagrams of transistorized generators with improved stability are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/	AR6032318 SOURCE CODE: UR/0274/66/000/007/A		
SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 7A74  REF SOURCE: Tr. uchebn, in-tov svyazi. M-vo svyazi SSSR, vyp. 27, 1965, 61-68  TOPIC TAGS: generator, transistorized generator  ABSTRACT: Special diagrams of transistorized generators with improved stability are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/	AUTHOR: Garmash, V. P.	23 S	
REF SOURCE: Tr. uchebn, in-tov svyazi. M-vo svyazi SSSR, vyp. 27, 1965, 61-68  TOPIC TAGS: generator, transistorized generator  ABSTRACT: Special diagrams of transistorized generators with improved stability are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/	TITLE: Highly-stable transistorized generators	7	
TOPIC TAGS: generator, transistorized generator  ABSTRACT: Special diagrams of transistorized generators with improved stability are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/	SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz', Abs. 7A74		
ABSTRACT: Special diagrams of transistorized generators with improved stability are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/		27, 1965,	100
are examined. The mathematical analysis is presented and a formula is derived for determining the effect of various parameters on the frequency of the generator. Experimental results are given. [Translation of abstract]  SUB CODE: 09/	TOPIC TAGS: generator, transistorized generator		
Cord 1/1 & UDC: 621, 373, 52	are examined. The mathematical analysis is presented and a formulator determining the effect of various parameters on the frequency of	la is derived	1
Card 1/1 / UDC: 621, 373, 52	are examined. The mathematical analysis is presented and a formular for determining the effect of various parameters on the frequency of Experimental results are given. [Translation of abstract]	la is derived	1
	are examined. The mathematical analysis is presented and a formulator determining the effect of various parameters on the frequency of Experimental results are given. [Translation of abstract]  SUB CODE: 09/	the generator	i l

# TUMANOVSKIY, M.N.; GARMASH, V.

Elactrokymographic and roentgenokymographic investigation of patients with myocardial infarction. Cor vara 5 no.2:90-106 163.

1. Faculty Clinic of Internal Medicine, Voronezh Medical Institute, Voronezh, USSR.
(MYOGARDIAL INFARCT) (ELEETROKYMOGRAPHY) (KYMOGRAPHY)
(RADIOGRAPHY)

TUMANOVSKIY, M.N., prof.; CARMASH, V.Ya.; NOVIKOV, Yu.G.

Electrokymographic examination of the heart in dogs in normal conditions and in experimental myocardial infarct. Terap.arkh. 33 no.10:11-18 '61. (NIRA 15:1)

1. Iz kafedry fakul'tetskoy terapii (zav. - prof. M.K. Tumanovskiy) i kafedry operativncy khirurgii s topograficheskoy anatomicy (zav. - prof. T.F. Lavrova) Voronezhskogo meditsinskogo instituta. (HEART—INFARCTION) (ELECTROKYMOGRAPHY)

### "APPROVED FOR RELEASE: 07/19/2001

### CIA-RDP86-00513R000514330002-3

TUMANOVSKIY, M.N.; GARMASH, V.Ya.

Electrokymographic and roentgenokymographic examination of patients with cardiac aneurysm. Kardilogiia 2 no.3240-44 My-Je '62. (MIRA 16:4)

1. Iz kliniki fakul'tetskoy terapii (zav. prof. M.N.Tumanovskiy)
Voronezhskogo meditsinskogo instituta.
(HEART—EXAMINATION) (ANEURYSMS) (KYMOGRAPHY)

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त्रमुख्यक्तकार्थक अन्तर्भक्षः । १० व्यावसम्बद्धम् ग्राह्मस्यान् भ्यत्न त्राह्मस्य ।

CIA-RDP86-00513R000514330002-3

TUMANOVSKIY, M.H.; LAVROVA, T.F.; HOVIKOV, Yu.G.; GARMASH, V. Ya.

Electrokymographic investigation of the heart in dogs following excision of experimental myomardial infarction. Kardiologiia 2 no.6:22-27 N-D\*62. (MIRA 17:8)

1. Iz kafedry fakul tetskoy terapii ( zav. - prof. M.N. Tumanovskiy) i kafedry topograficheskoy anatomii s operativnoy khirurgiyey ( zav. - prof. T.F. Lavrova) Voranezhskogo meditsinskogo instituta.

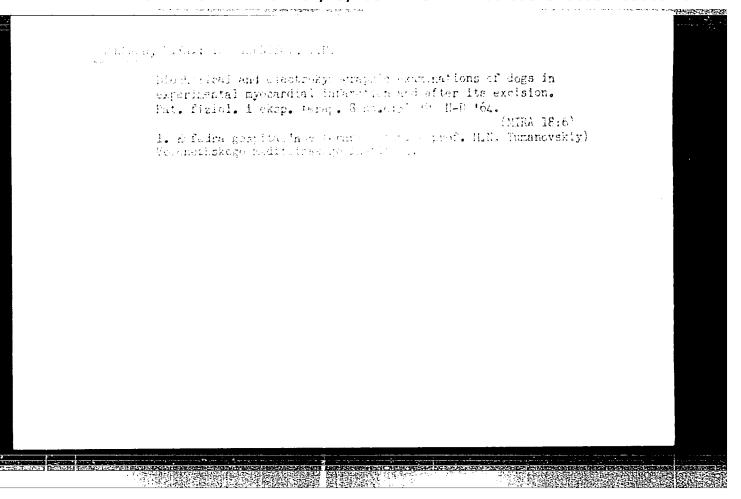
### "APPROVED FOR RELEASE: 07/19/2001

### CIA-RDP86-00513R000514330002-3

TYRTYSHNIKOV, I.M.; GARMASH, V. Ya.

Aldolase and transaminase activity of the blood serum and electrokymographic indices in myocardial infarction. Vrach. delo no.1: 20-25 Ja'64 (MIRA 17:3)

1. Kafedra gospital'noy terapii ( zav. - prof. M.N. Tumanovskiy) Voronezhskogo meditsinskogo instituta.



Townstrient, M.N., prof.; Shestakov, M.M.; Garmash, V.Ya.

Significance of electrokymography in the diagnosis of mitral defects complicated by cardiac fibrillation. Kardiologila 5 no.2:12-16 Mr-Ap '65. (MRA 18:7)

1. Kafedra gospital'noy terapii (vav. - prof. M.F. Tamanovskiy)

Veronozhakogo medituinskogo instituta.

अञ्चलक कुळकुत्र (इत्यार कबुक्का प्राप्त कर आहु किल्लाक करने कालाव असे एक गणा गणा.

HUVINSKIY, S.M., inshener.; STARETS, I.S., inshener.; GARMASH, Ye.Ye., inshener.

Hodernization of gear cages on rolling mills. Stal' 16 no.9:849-951
S '56.

(MIRA 9:11)

1. Leningradskoye montashno-tekhnicheskoye byuro tresta "Soyuspodshipnik-sbyt" i Ishorskiy savod.

(Rolling mills)

REFERENCE

Broadening Izm. tekh.	the scope of the w no.2:88-89 Mr-Ap 19 (Electronic	se of neterodyne 58. measurements)	(MIRA 11:3)	

SOV/106-58-9-4/17

AUTHOR:

Garmash, Ye. N.

A Single Junction Transistor RC-Oscillator (RC-generator

TITLE:

na odinochnom kristallicheskom triode)

PERIODICAL: Elektrosvyaz', 1958, Nr 9, pp 25 - 29 (USSR)

ABSTRACT: The usual method of constructing an RC-oscillator, using a valve, as described by Aseyev in Ref 1, requires a circuit to give a phase-shift of 180° between input and output voltages. Because the input impedance of a transistor is low the usual method of coupling the phase-shifting circuit to the transistor requires an emitter follower as The present article describes used by Lyubin in Ref 2. an alternative approach in which a network is derived which gives complete reversal at one frequency of the current entering the network. Equations (3) and (4) are expressions for the voltage-transfer and current-transfer respectively under open-circuit and short-circuit conditions. For a 3-section CR ladder network the voltage transfer at a phase shift of 180° is 1/29. Card 1/2 by Zelyakh in Ref 3 that by reversing the direction of energy flow in the circuit (as in Fig 5) an alternative

A Single Junction Transistor RC-Oscillator

SOV/106-58-9-4/17

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form of circuit (shown in Fig 6) can be derived in which the current transfer at the phase-reversal frequency is also 1/29. By using more meshes in the circuit and grading the impedance values (as in Fig 7) the attenuation may be made smaller. The loss in this last network for example is only 8.62 times, when the grading ratio is 2. A practical circuit using a type 116B transistor is shown in Fig 8 with component values as given in the last section of the text. The voltage supply is 25V and the element values have a tolerance of 5%. The calculated frequency of oscillation is 125 c/s and the experimentally measured value is 122 c/s. The output voltage is typically 20V peak-to-peak. There are 8 figures and 4 references, all Soviet. SUBMITTED: February 3, 1958

Card 2/2

# "APPROVED FOR RELEASE: 07/19/2001 CIA-R

CIA-RDP86-00513R000514330002-3

AUTHOR: Garmash, Ye.N., Member of the Association

307/108-13-7-6/14

TITLE:

On the Analysis of Circuits With Semiconductor Tricdes (K analizu skhem s poluprovodnikovymi triodami)

PERIODICAL:

Radiotekhnika, 1958, Vol. 13, Nr 7, pp. 47-54 (USSR)

ABSTRACT:

A method developed by V.P.Sigorskiy for the analysis of circuits with electron tubes is described (Refs 1 and 2). The application of this method (Refs 3 and 4) for the analysis of circuits with semiconductor triodes makes it possible to determine the necessary ratios for them without having to set up an equivalent circuit. For the analysis of circuits with semiconductor triodes it is necessary to find the matrix of the semiconductor triode which is supplemented by the addition of insulated nodes up to a (n + 1)-pole. The analogous matrix for an electron tube is dealt with (Refs 1, 2 and 5). The theoretical basis of the method mentioned is given (Ref 5). At present three parameter systems: Y, Z and H (Refs 6, 7 and 8) are being used for the analysis of circuits with semiconductor triodes. The application of the method developed by Sigorskiy for the analysis of circuits with semiconductor triodes without previously going over to equivalent

Card 1/2

### "APPROVED FOR RELEASE: 07/19/2001

### CIA-RDP86-00513R000514330002-3

On the Analysis of Circuits With Semiconductor Triodes

JUV/108-13-7-6/14

circuits of the semiconductor triods are investigated. The application of this method is illustrated on the basis of an analysis of the two-cascade amplifier. There are 4 figures, and 8 references, 7 of which are Soviet.

SUBMITTED:

March 4, 1957

ASSOCIATION: Vsesoyuznoye nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (All-Union Scientific-technical Association for Radio Engineering and Electrical Communications im. A.S. Popov)

> 1. Tricde circuits--Analysis 2. Semiconductors--Applications

Card 2/2

CIA-RDP86-00513R000514330002-3" **APPROVED FOR RELEASE: 07/19/2001** 

sov/106-59-6-8/14

Garmash, Ye.N. AUTHOR:

The "Infinite-Attenuation" Frequency of Low and High-TITLE:

Frequency RC Filters (Chastota beskonechnogo zatukhaniya

v fil trakh verkhnikh i nizhnikh chastot na RC)

PERIODICAL: Elektrosvyaz', 1959, Nr 6, pp 59-64 (USSR)

ABSTRACT: At a particular frequency the output voltage of the usual three-section RC filter is 1800 out of phase with respect

to the input voltage and reduced in amplitude. If, at this frequency, a fraction of the input voltage, equal to

the output voltage, is applied without change of phase to

the output terminals of the filter, then the output The frequency at which the net voltage is cancelled.

output voltage is zero, is called the "infinite-Figs 1 and 2 show such filter

attenuation frequency". circuits for high and low frequencies respectively. The The generalised

generalised circuit is given in Fig 3.

circuit is analysed by the method proposed by V.P. Sigorskiy (Refs 2,3). To find the frequency-

attenuation characteristic of the filter, it is necessary to consider the modulus of the element and of the

general matrix of the four-terminal network of Fig 3. This element all can be put in the following form: Card 1/4

SOV/106-59-6-8/14

The "Infinite-Attenuation" Frequency of Low and High-Frequency RC Filters

 $\mathbf{a}_{11} = \frac{\{Y\}_{11}}{\|Y\|_{1m}} \tag{1}$ 

where 1 is the input point and m the output point. The general expression for the attenuation coefficient all is given in Eq (3). The parameters of the high-frequency filter (Fig 1 and Eqs (4) - (7)) are substituted in the general expression (Eq (3)), giving Eq (8). To find the infinite-attenuation frequency  $\omega_0$ , the real and imaginary parts of the denominator are equated to zero (Eqs (9), (10)). The solution then gives:

 $\omega_{o} = \frac{1}{\sqrt{\frac{R_{3}}{R_{2}} + 6}} \cdot \frac{1}{C_{1}R_{2}}$  (11)

providing that  $R_{l_{+}} = \frac{R_{2}}{\frac{l_{+}(R_{3})}{R_{2}} + 29\left(\frac{R_{2}}{R_{3}}\right) + 23}}$  (12)

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The "Infinite-Attenuation" Frequency of Low and High-Frequency RC

After substitution of Eq (11) and Eq (12) in (8), an expression for the attenuation coefficient is obtained (Eq (13)). The author then considers three particular

cases:  $R_3 = \frac{R_2}{2}$ , 2)  $R_3 = R_2$ , 3)  $R_3 = 2R_2$ 

The procedure is repeated for the low-frequency filter (Fig 2). Providing that

 $c_{14} = 4 + \frac{c_{2}^{2}}{c_{3}} + 23c_{2} + 29c_{3}$  (29)

is met, then the infinite attenuation frequency is

$$\omega_{o} = \sqrt{\frac{c_{2}}{4 \frac{c_{2}}{C_{3}} + 6} \frac{1}{c_{2}R_{1}}}$$
 (30)

Card 3/4 and the attenuation coefficient is given by Eq (31).

SOV/106-59-6-8/14

The "Infinite-Attenuation" Frequency of Low and High-Frequency RC Filters

Three particular cases are considered:

1) 
$$c_3 = \frac{c_2}{2}$$
,

2) 
$$c_3 = c_2$$

2) 
$$c_3 = c_2$$
, 3)  $c_3 = 2c_2$ .

There are 5 figures and 3 Soviet references.

May 8, 1957 SUBMITTED:

Card 4/4

CIA-RDP86-00513R000514330002-3" APPROVED FOR RELEASE: 07/19/2001

05372 sov/106-59-8-4/12

AUTHORS:

Aleksandrov, A.I. and Garmash, Ye.N.

TITLE:

Analysis of Semiconductor Triode Oscillator Circuits

Elektrosvyaz', 1959, Nr 8, pp 31 - 37 (USSR) PERIODICAL:

ABSTRACT:

In the analysis of oscillators, it is usual to obtain an expression for the open-loop gain of the amplifier stage; the condition for self-oscillation is then found from the real part of the expression and the oscillation frequency from the imaginary part. This method is suitable for valve

oscillators which have high input impedances but has

limitations for semiconductor triode oscillators having low The article investigates these limi-

input impedances. tations and the inaccuracies involved.

The basic oscillator equation is first established by considering the circuit as a fourterminal network, the output terminals of which are connected to the input terminals (Figure 1). Such a circuit is analytically

described by the matrix equation:

Cardl/5

05372 SOV/106-59-8-4/12 Circuits

Analysis of Semiconductor Triode Oscillator Circuits

Semiconductor 
$$\dot{\mathbf{I}}_{1}$$

$$\begin{vmatrix} \dot{\mathbf{I}}_{1} \\ \dot{\mathbf{I}}_{1} \end{vmatrix} = \begin{vmatrix} \mathbf{A}_{11} & \mathbf{A}_{12} \\ \mathbf{A}_{21} & \mathbf{A}_{22} \end{vmatrix} \cdot \begin{vmatrix} \dot{\mathbf{I}}_{2} \\ \dot{\mathbf{I}}_{2} \end{vmatrix}$$

$$(1)$$

and, with the feedback loop closed, the basic equation reduces to:

$$A_{11} + A_{22} - |A| - 1 \le 0$$
 (7)

where

$$|A| = A_{11} A_{22} - A_{12} A_{21}$$

In the simplest form, the oscillator circuit can be considered as two four-terminal networks connected in cascade (Figure 2): the first is active (a semiconductor triode) and the second, representing the feedback

Card2/5

05372 S0V/106-59-8-4/12

Analysis of Semiconductor Triode Oscillator Circuits

connection, is passive. (The positions of the networks can be reversed without affecting the argument.) The determinant |A| is equal to the product of the determinants of the matrices of the separate four-terminal networks:

$$|A| = |a'| \cdot |a''|$$
 (8)

and, considering the determinant of the passive network matrix zero, Expression (7) becomes:

$$A_{11} + A_{22} - |a'| - 1 \le 0$$
 (9).

This latter expression is used to analyse both common-emitter and common-base or common-collector circuits.

Card3/5

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SOV/106-59-8-4/12 Analysis of Semiconductor Triode Oscillator Circuits

For common-emitter circuits, the exact basic oscillator equation is:

$$A_{11} + A_{22} - 1 + \frac{Y_{12}}{Y_{21}} \leqslant 0$$
 (12)

which can be simplified to the approximate equation:

$$A_{11} + A_{22} - 1 \leqslant 0$$
 (14).

It is then shown analytically that the approximate equation for an oscillator does not differ significantly from the exact equation for common-emitter circuits and, consequently, all the design formulae obtained by use of the approximate equation are admissible but, for circuits with a common-base or common-collector, the approximate

Card 4/5

CIA-RDP86-00513R000514330002-3" APPROVED FOR RELEASE: 07/19/2001

05372

SOV/106-59-8-4/12 Analysis of Semiconductor Triode Oscillator Circuits

equation differs considerably from the exact, and cannot be used for analysis and design of such circuits. There are 9 figures and 6 references, of which 5 are

Soviet and 1 German.

SUBMITTED: October 2, 1958

Card 5/5

81:372 S/106/60/000/006/005/013 A169/A026

9,2586

\_Garmash, Ye.N.

TITLE:

AUTHOR:

The Ultimate Values of Resistances of Ladder-Network RC-Oscillators

PERIODICAL: Elektrosvyaz', 1960, No. 6, pp. 24 - 27

TEXT: The author discusses conditions for the self excitation of laddernetwork RC-oscillators (tsepochechnyy RC-generator) taking into account the output resistance of the amplifier. According to V.G. Kriksunov (Ref. 1), it is usually assumed that the input resistance of the phasing network (faziruyushchaya tsepochka) is considerably greater than the output resistance of the amplifier stage. For this reason, the effects of the plate resistance Ra and the plate load resistance are usually not taken into account in the formulas for determining the frequency and the conditions at which a self-excitation will originate. The author derives a general formula for the self-excitation conditions of a ladder-network RC-oscillator  $-a_{11}-a_{21}R_a \leq S \cdot R_a$  (4), where  $a_{11}$ ,  $a_{21}$  are amplifier matrix elements in the formula of Ye.V. Zelyakh (Ref. 3). The author uses the above condition of self-excitation in discussing three and four-element ladder-network RC-oscillators. He obtained formulas which make it possible to

Card 1/3

8h372 S/106/60/000/006/005/013 A169/A026

The Ultimate Values of Resistances of Ladder-Network RC-Oscillators

determine the boundary values of resistance in phasing networks and whose reduction will not cause a self-excitation of the RC-oscillator. The formulas obtained for the frequency coincide with the formulas given by Townsend (Ref. 2), who also considered in his calculations the effect of amplifier parameters. The author presents a graph (Fig. 3) in which he shows the ratio  $R_{\rm a}/R_{\rm min}$  in dependence on the amplification factor S  $\cdot$  Ra. [ABSTRACTER'S NOTE: Subscript min (minimum) is a translation of the original  $_{\rm Mux}({\rm minimum})$ ]. A comparison of the curves (Fig. 3) for networks "R-parallel" and "C-parallel" (tsepochki R-parallel' i C-parallel') shows that the RC-oscillator with the "C-parallel" network is excited at lower R/Ra value than with the "R-parallel" network at conditions otherwise equal. Beginning with an amplification factor equal or higher than 38, the RC-oscillator with a four-element "R-parallel" network is excited at greater R/Ra values than the RC-oscillator with a three-element "C-parallel" network. At an amplification factor greater than a determined value (which is different for various networks), the resistance of the phasing network can be selected smaller than the resistance Ra. In calculating RC-oscillators, the value of the resistance R must be selected in such a way that, at a selected amplification factor,

Card 2/3

84372 \$/106/60/000/006/005/013 A169/A026

The Ultimate Values of Resistances of Ladder-Network RC-Oscillators

the ratio  $R/R_a$  is greater than the minimum value  $R_{\text{min}}/R_a$ , determined from the graph (Fig. 3). There are 3 figures and 5 references: 4 Soviet and 1 English.

SUBMITTED: October 27, 1959

X

Card 3/3

		or four-ter 43-50 D		istor networl	ks. Radi (MIRA l	o- 4:9)
radiotekhr	niki i elek	trosvyazi i	o-tekhniches imeni Popova or circuits)	kogo obshche: •	stva	

GARMASH, Ye.N. Analysis of a low-frequency RC-oscillator using one junction transistor. Radiotekhnika 17 no.11:68-73 N '62. (MIRA 15:11) 1. Deystvitel nyy chlen Nauchno-tekhmicheskogo obshchestva radiotekhniki i elektrosvyazi. (Oscillators, Transistor) 

AKULOV, I.I.; BARZHIN, V.Ya.; VALITOV, R.A.; GARMASH, Ye.N.; KUCHIN, L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.; SEMENOVSKIY, V.K.; SIMONOV, Yu.L.; TARASOV, V.L.; TEREKHOV, N.K.; SHEVYRTALOV, Yu.B.; YUNDENKO, I.N.; CHISTYAKOV, N.I., otv. red.; KOKOSOV, L.V., red.; TRISHINA, L.A., tekhn.red.

[Theory and design of principal radio circuits using transistors] Teoria i raschet osnovnykh radiotekhnicheskikh skhem na transistorakh. [By] I.I.Akulov i dr. Moskva, Sviaz'izdat, 1963. 452 p.

The first of the space of the same of the same and the sa

(MIRA 16:8)
(Transistor circuits) (Electronic circuits)

AKULOV, I.I.; BARZHIN, V.Ya.; VALITOV, R.A.; GARMASH, Ye.N.; KUCHIN, L.F.; NAYDEROV, V.Z.; PUTSENKO, V.V.; SEMENOVSKIY, V.K.; SIMONOV, Yu.L.; TARASOV, V.L.; TEREKHOV, N.K.; SHEVYRTALOV, Yu.B.; YUNDENKO, I.N.; CHISTYAKOV, N.I., prof., otv. red.; KOKOSOV, L.V., red.

[Theory and design of basic radio circuits using transistors] Teorila i raschet osnovnykh radiotekhniche-skikh skhem na tranzistorakh. Moskva, Sviaz', 1964.
454 p. (MIRA 18:8)

RUBAN, Pavel Ivanovich; GARMASH, Yevdokiya Yevdokimovna; TAL'SKIY, D.A., red.; MURASHOVA, V.A., tekhn. red.

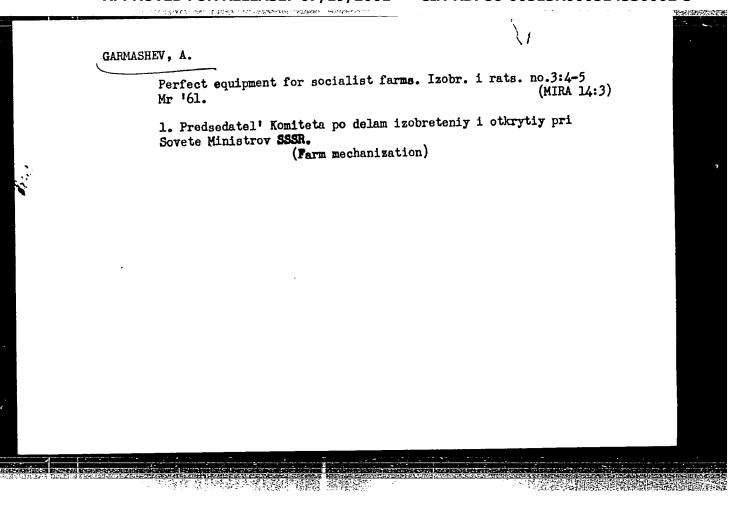
[Textbook for the solution of problems in analytic geometry]
Rukovodstvo k reshenitu zadach po analiticheskoi geometrii.
Moskva, Vysshaia shkola, 1963. 313 p. (MIRA 16:8)

(Geometry, Analytic)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

## "APPROVED FOR RELEASE: 07/19/2001

### CIA-RDP86-00513R000514330002-3



GARMASHEV, A.F.

Improve the administrative handling of inventions and efficiency suggestions. Izobr. v SSSR 1 no.1:5-9 Jl '56. (MIRA 10:3)

1. Predsedatel' Komiteta po delam izobreteniy i otkrytiy pri Sovete Ministrov SSSR.

(Inventions) (Suggestion systems)

GARMASHEU, ALEKSANDR Formich

Call Nr: T26.R9G3

AUTHOR

Garmashev, Aleksandr Fomich (Chairman of the Committee on

Inventions and Discoveries at the Council of Ministers of the

USSR)

TITLE:

Development of Inventions in the USSR (Izobretatel'stvo v SSSR)

PUB. DATA:

Gosudarstvennoye izdatel'stvo politicheskoy literatury, Moscow,

1957, 147 p., 25,000 copies.

ORIG. AGENCY: None given

EDITOR:

Editor: Kostin, N.; Tech. Ed.: Mukhin, Yu.; Art. Ed.: Sergeyev, S.;

Proofreader: Viflyayeva, N.

PURPOSE:

The monograph by summarizing and emphasizing the merits of past inventions and discoveries in the USSR is designed to stimulate

and encourage efforts in that direction.

COVERAGE:

A general review of the most important inventions in Russia, before

and particularly after the Revolution is presented. In this

connection, many mames of inventors, developers, engineers, scientists, etc. are given. In addition, organizations for utilization and patenting

Card 1/2

of inventions (such as Bureaus for Rationalization and Inventions)

Development of Inventions in the USSR. (Cont.)

Call Mr: T26.R903

within various plants, technical councils within ministries, etc. and their functions are described. Specific tasks for inventors in various branches of industry are outlined. There are no references.

# TABLE OF CONTENTS

The Care of the Communist Party on Behalf of the Development of Inventions	Page		
Achievamento es Contat T	3		
Achievements of Soviet Innovators in Science and Rechnology	18		
Let Us Propagate Positive Know-How. Let Us Remove the Obstacles Along the Path of Mass Inventions	57		
Most Important Tasks of Inventors and Innovators in the Field of			
Technical Progress	96		
What the Inventor Should Know	•		
Card 2/2	121		

GARMASHEV, A.				
2 no.5	t delegation in the German 5:31-33 My '57.		Izobr.v SSSR MLRA 10:7)	
1. Pre Minist	edsedatel! Komiteta po deli trov SSSR.	am izobreteniy i otkry	iy pri Sovete	:
	(Germany, EastPe	atent laws and legisla	ion)	

GARMASHOT, A.F.

Forty years of inventing in the U.S.S.R. Izobr.v SSSR 2 no.11:
3-10 N '57. (MIRA 10:10)

1. Predsedate1' Kometeta po delam izobreteniy i otkrytiy
pri Sovete Ministrov SSSR.
(Inventions) (Efficiency, Industrial)

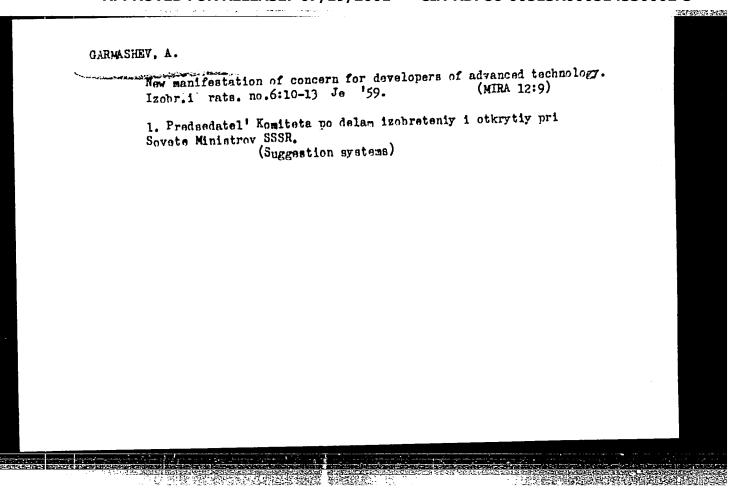
GARMASHEV, A.

Results of invention and improvement activities in the USSR in 1956. Tr. from the Russian. p. 89.

(Sbirka Vynalegu. Vol. 6, no. 5, May 1957. Praha, Czechoslovakia)

SO: Monthly List of East European Accessions (EEAL) LC, Vol. 6, no. 10, October 1957. Uncl.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"



A STATE OF THE PROPERTY OF THE

# GARMASEV, A. F. [Garmashev, A. F.]

Honoring and militant task. Ujit lap 13 no.11:3-4 Je '61.

1. A Szovjetunio Minisztertanacsa mellett mukodo Talalmanyi es Felfedezesugyi Bizottsag elnoke.

(Russia--Inventions) (Russia--Patents)

HANKER

Generous re	wards. Izobr. i rat	s. no.11:22-23 [ [}	v '61. MIRA 14:11)	
	(Rewards(Prizes,	etc.))		

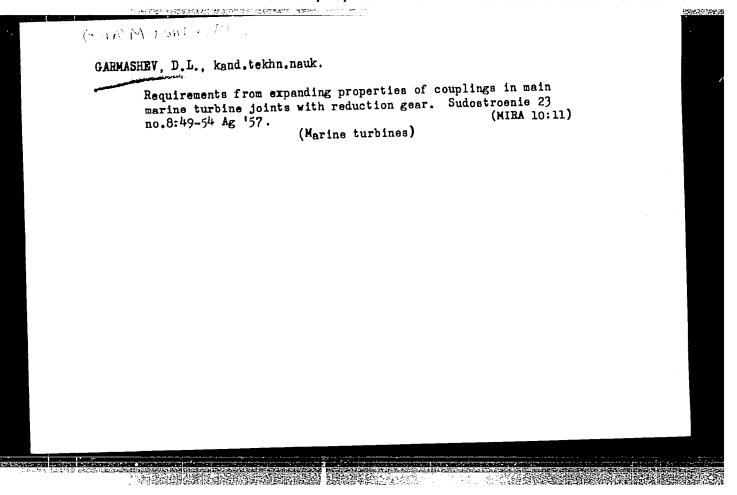
168T32 GARMASHEV, D. L. USSR/Engineering - Shipbuilding, Sub- Jan/Feb 47 nerines "Launching of Submarines on a Single Slide," D. L. Garmashev, Engr "Sudostroyeniye" No 1, pp 4-8 Describes use of large shipyards to assembly submarine sections and launch large submarines of 1,600 tons displacement (done in Germany for mass production of submarines). Slips described could accommodate two submarines on each launching slide. Sections of submarines, made at different plants, were delivered to shippard on special pontoons. 168T32 

GARMASHEV, Dmitriy Leonidovich; KUDRYAVTSEV, Fedor Aleksandrovich;

KURTOFOVICH, A.I., tekhnicheskiy redaktor.

[Modern methods of installing marine shafting] Sovremennye
methody montashe sudovykh valoprovodov. Leningrad, Gos.
metody montashe sudovski promyshi.,1955. 177 p. (MLRA 8:12)

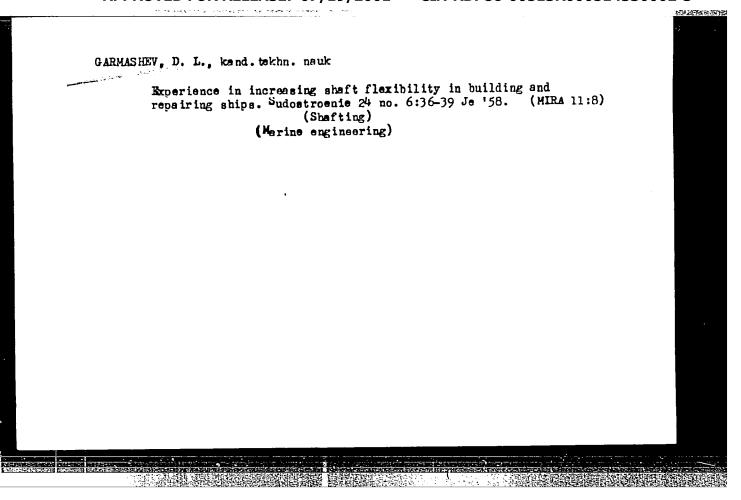
(Shafts and shafting) (Marine engineering)



of the choice of technology in the alignment of ship drive shifts." /Mos/, 1958, 21 pp with drawings (State Bommittee of the Council of Ministers of the USSR for Ship Sonstruction.

Central Sci Res Inst) 120 copies (KL, 28-59, 125)

- 43 -



GARMASHEV, D.L., kand. tekhn. nauk; CHERYTAKOV, M.M., inzh.

Use of fitted bolts for fastening ship machinery on their foundation beds. Sudostroenie 25 no.10:39-42 0 '59. (MIRA 13:2)

(Marine engineering--Equipment and supplies)

n which is a control of the control

GARMASHEV, D.L., kand.tekhn.nauk

Propeller shaft fitting in building small vessels without use of mobile boring machines. Sudostroenie 25 no.12:41-45 D (MIRA 13:4)

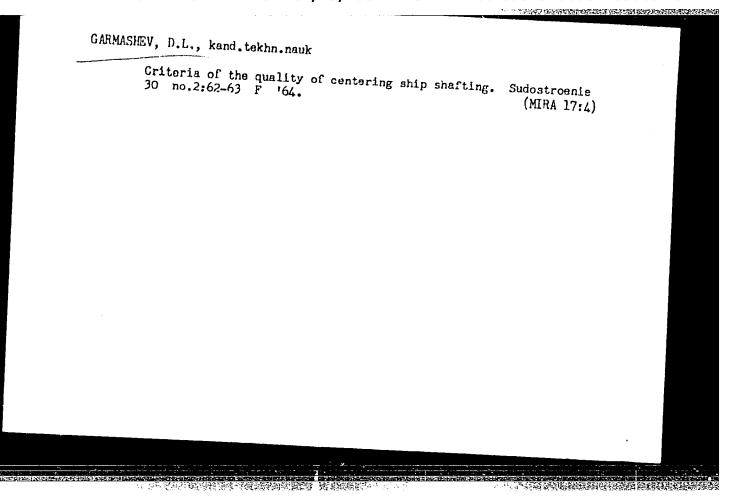
(Shafting) (Shipfitting-Equipment and supplies)

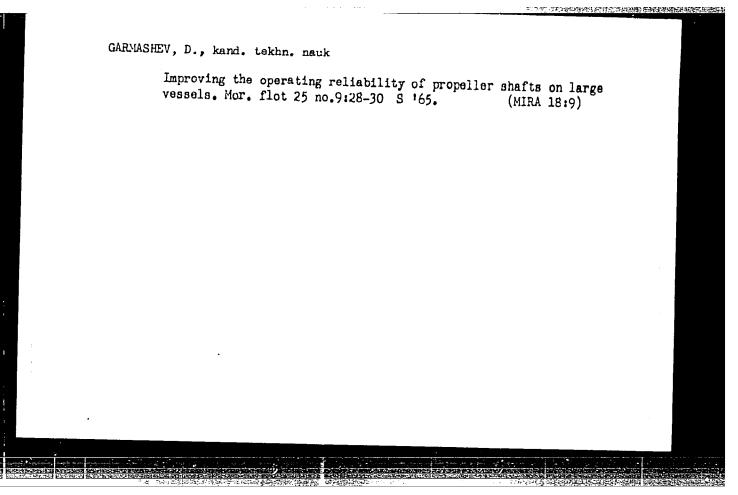
GARMASHEV, Dmitriy Leonidovich, kand. tekhn. nauk; KUDRYAVTSEV, Fedor Aleksandrovich; inzh.; MARKOV, Aleksandr Panteleymonovich, inzh.; GERSHTEYN, Yu.S., inzh., retsenzent; ROKHLIN, A.G., kand. tekhn. nauk, retsenzent; ZHIDYAYEV, O.A., nauchnyy red.; OZEROVA, Z.V., red.; KRYAKOVA, D.M., tekhn. red.

[Modern methods of assembling marine shafting] Sovremennye metody montazha sudovykh valoprovodov. Izd.2., ispr. i dop. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1961. 280 p.

(MIRA 14:10)

(Shafting) (Ships—Equipment and supplies)





KLOKNAN, V.R.; GARMASHEV, Yu.M.

Crystallization coefficient of radium in nitrate systems. Radiokhimiia 1 no.1:26-31 '59. (MIRA 12:4)

(Radium--Crystals) (Nitrates)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

LETT:, V.A. [laputs', V.A.]; GARGAGEVA, L.F. [Farmachow, 1.F.]

Some diaracteristics of the change in the depth of the occurence of oil and biturens in the Perculan additions of the longer Valley.

Vertsi AS BESS. Ser. Cim.-took. rav. no.4:92-99 163.

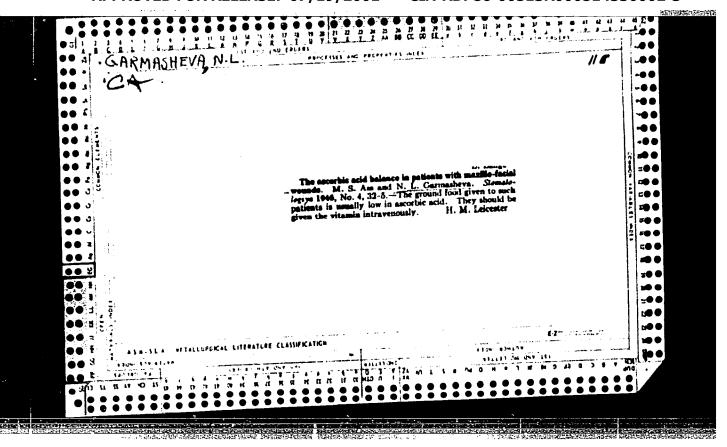
(1984 17:12)

"Concerning the Rele of the Ferrico Symbol to the Pestania of the Regulation of Genual Functions,"

Theris of the reports of the seasing of the Institute of Clatchrico and Symbology, UNR Academy of Johnson, Catalan 1943.

Con Front May, Vol 10, No 3, 1952.

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"



GARMASHEVA, N. L.

Garmasheva, N. L. - "On the effect of sympathectomy on the condition of infectious inflammation of the uterus", In the collection: Mekhanizm patol. reaktsiy, Issues 11-15, Leningrad, 1949, p. 112-16, - Bibliog: 6 items.

SO: U-4329, 19 August 53, (Letopis 'Zhurnal 'nykh Statey, No. 21, 1949).

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

Garmasheva, N. L. "Data for the study of the mechanism of anaph lactic shock", In the collection: Mekhanizm patol. reaktsiy, Issues 11-15, Leningrad, 1949, p. 161-65.

SC: U-4392, 19 August 53, (Letopis 'Zhurnal 'nykh Statey, No 21, 1949).

GARMASHEVA, N.L.

Reflex mechanism in the onset of labor. Akush.gin. no.2:3-9 Mar-Apr 51. (CIML 20:8)

1. Of the Pathophysiological Laboratory of the Institute of Obstetrics and Gynecology (Director—Prof. A.P. Nikolayev, Corresponding Member of the Academy of Medical Sciences USSR) of the Academy of Medical Sciences USSR.

GARMAGHEVA, M.L.

KRYZHANOVSKAYA, Ye.F.; CARMASHEVA, N.L., zaveduyushchiy; NIKOLAYEV, A.P., direktor; AYRAPET YANTS, E.Sh., zaveduyushchiy; BYKOV, K.M., akademik, direktor.

Data for the characteristics of uterine reception. Vop.fiziol.int. no.1:265-272 '52. (MLRa 6:8)

1. Laboratoriya patofiziologii TSentral'nogo instituta akusherstva i ginekologii Akademii meditsinskikh nauk SSSR (for Garmasheva). 2. TSentral'nyy institut akusherstva i ginekologii Akademii meditsinskikh nauk SSSR (for Nikolayev). 3. Laboratoriya interotseptivnykh uslovnykh refleksov Instituta fiziologii im. I.P.Pavlova akademii nauk SSSR (for Ayrapet'yants). 4. Institut fiziologii im. I.P.Pavlova akademii nauk SSSR (for Bykov).

(Nervous system) (Uterus)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

ANDRIVASHEVA, N.M.; BARKAL, T.P.; BEKKER, S.M.; BOGDANOV-BEREZOVSKIY, Y.V.;
BHAUN, A.D.; VASILEVSKAYA, N.L.; CARNOSHRVA, N.L.;
DENICHEV, I.P.; DRIEGALOVICH, S.Te.; KALINIMA, N.A.; CARNASHRVA, N.L.;
KITZHANOVSKAYA, Ye.F.; MIROVICH, H.I.; PROHOKOVA, V.K.; PUGOVISHNIKOVA, M.A.; RISHETOVA, L.A.; SVETLOV, P.G.; UTROENOVA, K.D.; KHEGHINASHVILI, G.G.; SHVANO, L.I.; GARMASHEVA, N.L., professor, redaktor;
RUDAKOV, A.V., redaktor; RULEVA, M.S., tekhnicheskiy redaktor.

[Reflex actions in mother-fetus interrelations] Reflektornye reaktsii
vo vzžimootnosbenitakh materinskogo organisma i ploda. [Leningrad]
Gos. izd-vo med. lit-ry, Leningradskoe otd-nie, 1954. 266 p.(MLRA 7:10)

(Pregnancy) (Embryology)

CARMASHHEVA. A.L.

USSR/General Biology. Individual Development

B--4

Abs Jour : Rof Zhur - Biol., No 22, 1958, No 98915

Author : Garmasheva N.L.

Inst : Loningrad University

Title : Participation of Mother's Organism in Embryonic

Development

Orig Pub : V sb.: Probl. sovrom. embriologit, L., Un-t,

1956, 256-261

Abstract: On the basis of the author's own observations and those reported in the literature, the progravidic changes which create conditions of the fotus development in mother's organism are considered; these changes assure the proparation for the placentation of the fetus and adaptive reactions of the mother's organism during pregnancy. --

R.A. Chapnitskaya

Card : 1/1

10

GARMASHEVA, N.L., Prof.,

"Complex Research at the Institute of Obstetrics and Gynecology of the Academy of Medical Sciences USSR in Conjunction with Various Laboratories," This study included the effect of radiation on pregnant animals irradiated by X rays on embryogenesis and on the condition of the fetus. In addition, the professor considered certain problems of the mechanism of the injury of the fetus.

Paper presented at the 11th LSession of AMS USSR on Trauma, April 1957.

SO: SUM. 1644

Some problems in the physiology and pathophysiology of pregnancy.

Vest. AMN SSSR 12 no.4:46-61 '57. (MIRA 10:10)

1. Institut skusherstve i ginekologii AMN SSSR, Leningrad.

(PREGNANCY)

GARMASHEVA, Natal'ya Leonidovna, red.

[Pathophysiology of intratubal development] Patofiziologiia vnutriutrobnogo razvitiia. Leningrad, Medgiz, 1959. 322 p. (MIRA 13:9)

A CONTROL OF THE PROPERTY OF T

GARMASHEVA, N.L.; KRYZHANCYSKAYAL-KAPLUN, Ye.F.

Data on electrophysiological investigation of unconditioned reactions typical for the period of pregnancy. Fiziol. zhur. 46 no.12:1463-1470 D '60. (MIRA 14:1)

1. Laboratoriya normal'noy i patologicheskoy fiziologii Instituta akusherstva i ginekologii AMN SSSR, Leningrad.
(UTERUS—INNERVATION) (PREGNANCY)

### GARMASHEVA, N.L.

Problem of the interrelationship of the mother and fetus. Vest. AMN SSSR 17 no.11:19-23 '62. (MIRA 16:1)

1. Institut akusherstva i ginekologii AMN SSSR, Leningrad. (FETUS) (PREGNANCY)

APPROVED FOR RELEASE: 07/19/2001 CIA-RDP86-00513R000514330002-3"

1.12年,60年,在大学的,1.551年5年2月2日的政治中国的建筑社会的政治的

FERROV-MAS LAKOV, Mikhail Andreyevich, prof , red.; GARHASHEVA, Natal'ya Leonidovna, prof , red.; ALIFOV, V.I., red.

[Hypoxia of the fetus and the newborn; its pathogenesis and diagnosis] Gipoksiia ploda i novorozhdennogo; patc-genez i diagnostika. Leningrad, Meditsina, 1964. 150 p. (MTMA 17:11)

1. Chlen-korrespondent AMN SSSR (for Petrov-Maslakov).

GARMASHEVA, Natal'ya Leonidovna, prof.; GRANAT, N.Ye., red.

[For the woman about the intrauterine development of the child] Zhenshchine o vnutriutrobnom razvitii rebenka.

Moskva, Meditaina, 1965. 23 p. (MIRA 19:1)

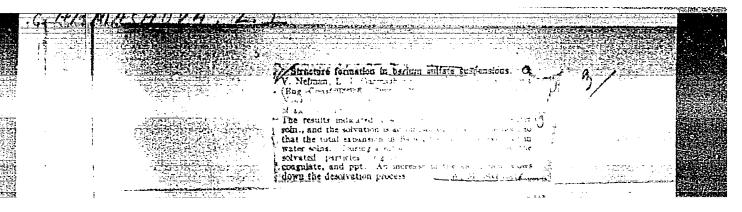
YEOUDIN, I.; CARMASHOV, V., starshiy nauchnyy sotrudnik; PANEVSKIY, N., starshiy sotrudnik.

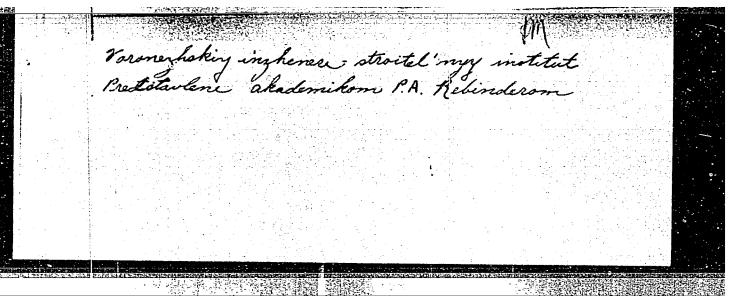
Organization of feed supply in steppe regions. Zhivotnovodstvo 20 no.3:18-21 Mr '58. (MIRA 11:2)

1. Predsedatel' kolkhoza "Druzhba narodov" (for Yegudin). 2. Krymskaya sol'skokhozyaystvernaya opytnaya stantsiya (for Garmashov, Panevskiy). (Grimea--Feeding and feeding stuffs)

A TOTAL STREET CONTRACTOR TOTAL TOTAL

Vicia pannoni My 159.	ca in the Crimea. Zhivotnovodstvo	21 no.5:30-31 (NIRA 12:7)				
1. Krymskaya	1. Krymskaya gosudarstvennaya sel'skokhozyaystvennaya opytnaya					
stantsiya.	(CrimeaVetch)					
	•					
•						
•						





GARMATA, WA.

137-58-5-9368 D

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 80 (USSR)

AUTHOR:

Garmata, V.A.

TITLE:

Investigation of Electrode Processes in Electrolytic Refining of Aluminum (Issledovaniye elektrodnykh protsessov pri elektrodnykh protsessov p

troliticheskom rafinirovanii alyuminiya)

ABSTRACT:

Bibliographic entry on the author's dissertation for the degree of Candidate of Technical Sciences, presented to the Mosk. in-t tsvetn. met. i zolota (Moscow Institute for Nonferrous Metals and Gold). Moscow, 1957

Metals and Gold), Moscow, 1957.

ASSOCIATION: Mosk. in-t tsvetn. met. i zolota (Moscow Institute for Non-ferrous Metals and Gold), Moscow.

1. Aluminum--Purification 2. Electrodes (Electrolytic cell) --Performance

Card 1/1

AUTHORS: Garmata, V.A. and Belyayev, A. I. 136-9-10/14

TITLE: Study of electrode processes in the electrolytic refining of aluminium. (Izucheniye elektrodnykh protsessov pri

elektroliticheskom rafinirovanii alyuminiya).

PERIODICAL: Tsvetnyye Metally, 1957, No.9, pp. 58-66 (USSR).

AESTRACT: The author describes and gives results of investigations of electrode processes during the electrolytic refining of aluminium by the three-layer method. The experiments were based on the study of polarization at the cathode and anode in relation to the current density, temperature, composition of the electrolyte, electrode material, nature of the ionic diffusion and other factors. Laboratory experiments for studying these factors were carried out in a special cell (Fig.1) and further laboratory work on the determination of the electrical-conductivity, density and liquidus temperatures of chloride-fluoride and fluoride electrolytes were made in a palladium cell. Back e.m.f. and, polarization of electrodes were studied on industrial cells. with oscillographic recording of current and voltage (Figs.7 and 10). The authors conclude that in the electrolysis of chloride-fluoride (60% BaCl2 + 23% AlF2 +

Card 1/2 16% CaF<sub>2</sub>) and fluoride (48% AlF<sub>2</sub> + 18% NaF + 18% BaF<sub>2</sub> + 18% CaF<sub>2</sub>) the primary process on the cathode is the

176-9-10/14

Study of electrode processes in the electrolytic refining of aluminium.

discharge of aluminium ions and on the anode the electrochemical solution of aluminium. In the mixed electrolyte
polarisation of -510, -605 and +220 mV correspond to the
start of discharge of barium, berium + acdium and chlorine
ions, respectively; in the fluoride electrolyte -575 and
+340 mV correspond to start of discharge of sodium and
fluorine, respectively. In consercial cells the mean
back o.m.f. was 370 mV, a figure which the authors
recommend for calculation purposes. As an additive they
recommend lithium fluoride (5-6% by weight) or 55% BaCl<sub>2</sub> +
35% AlF<sub>2</sub>.1.5 MaF + 10% MaCl. The authors state that
the use of fluoride electrolyte for primary-luminium
refining is unsuitable but can be recommended for secondary
metal containing magnesium.
The following assisted in the full-scale won't: 3. Ye. Vol'Taon,
Ya. Sh. Katon and L. A. Baldovskiy.

Card 2/2 There are 12 figures, 1 table and 11 references - 7 Russian, 1 German, 1 Italian, 1 French, 1 Implich.

ASSOCIATION: Mintsvetnetscloto.

AVAILABLE: Library of Congress.

1. Aluminum-Refining 2. Electrodes-Processes

PARMATA V. A.

SOV/137-58-9-18739

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 84 (USSR)

AUTHORS: Garmata, V.A., Belyayev, A.I.

TITLE: Investigation of Electrode Processes in Electrolytic Refining

of Aluminum (Issledovaniye elektrodnykh protsessov pri elek-

troliticheskom rafinirovanii alyuminiya)

PERIODICAL: Sb. nauchn. tr. Mosk. in-t tsvetn. met. i zolota, 1957, Nr 27,

pp 193-214

ABSTRACT: A study is made of the relationship of electrode potentials to current density, temperature, and melt composition in the case

of a chloride-fluoride electrolyte (E) (60% BaCl<sub>2</sub>, 23% AlF<sub>3</sub>, 17% NaF) and a pure fluoride E (48% AlF<sub>3</sub>, 18% NaF, 18% BaF<sub>2</sub>, 16% CaF<sub>2</sub>). It is shown that the switching method of determining potentials is not applicable to the study of this process, in view of the comparatively small rate of increase in electrode potentials, varying unevenly with cd when the current

is turned on, and also in relation to the rate of drop in electrode potentials which undergoes very great and uneven changes

Card 1/2 after disconnection of the polarizing current. The use of a

SOV/137-58-9-18739

Investigation of Electrode Processes in Electrolytic Refining of Aluminum

magneto-optical oscilloscope to investigate high-speed electrode processes is recommended. The cathodic and anodic current efficiency of either E is studied. It is found that the current efficiency is 3-4% higher with pure fluoride E, and therefore the latter is more desirable than the chloride-fluoride type. The conclusion is drawn that contamination of the cathode metal by Gu is attributable to the fact that the surface of the anode electrode becomes low in Al, and this creates conditions favorable to Gu going into the melt and being precipitated at the cathode. The study performed confirms the conclusion that the primary cathode process is the discharge of Al 3+ ions.

N.P.

1. Aluminum--Purification 2. Electrodes--Performance 3. Electrolytes--Properties

4. "lee relytes--Chemical reactions

Card 2/2

S/598/61/000/006/004/034 D24**5**/D303

AUTHORS: Lukashenko, E.Ye., Kramnik, V.Yu., Garmata V.A., and

Sergiyenko, S.N.

TITLE: Developing and introducing the method of titanium

tetrachloride in retorts without inserting a reaction

vessel

SOUR : Akademiya nauk SSSR. Institut metallurgii. Titan i

yego splavy. no. 6, 1961. Metallotermiya i elektro-

khimiya titana, 23 - 26

TEXT: The authors carried out 38 experiments in which, for varying conditions of feed rate, temperature, etc., magnesiothermal reduction of TiCl<sub>4</sub> in a single-zone reactor was compared with the same process carried out using an inserted stainless steel reaction vessel. The results show that the single-zone process utilized 50 - 60 % of the reactor volume as against 35 - 40 % for the other process, that the cycle removal of Ti sponge increased by 50 - 60 %, that labor productivity increased by about 30 % and that the quali-

Oard 1/2

S/598/61/000/00 004/034
Developing and introducing the ... D245/D303

ty of Ti sponge produced was not inferior to that produced by the other method. There are 1 figure and 2 tables.

Card 2/2

32548

18.8260 1454

S/136/62/000/001/005/005 E073/E335

AUTHORS:

Garmata, V.A., Fal'kevich, E.S., Arutyunov, E.A.

and Kulikov, V.A.

TITLE:

Influence of admixtures on the hardness of commercially pure titanium and its relation to

other mechanical properties

PERIODICAL: Tsvetnyye metally, no. 1, 1962, 80 - 83

TEXT: The test results of over 2 500 specimens from various batches of titanium sponge, produced under normal shop conditions, were utilized for analyzing the relation between the hardness, ultimate strength, elongation and contraction. Furthermore, the influence of admixtures contained in this sponge on the mechanical properties of the ingots produced from it were studied. A correlation analysis was made on the basis of the results of determination of the mechanical properties of samples from 300 different batches of titanium sponge. The hardness was measured on titanium ingots 60 mm dia. x 50 mm produced by vacuum electricarc smelting, using a consumable electrode. The hardness was measured in the as-cast state, using a 10-mm diameter street half Card 1 h

S/136/62/000/001/005/005 E073/E335

Influence of admixtures on

with a pressure of 3000 kg. The correlation analysis for determining the relation between the hardness of the Ti in the as-cast state and the chemical composition was based on the results obtained from specimens of 2 500 batches of Ti sponge. in which the content of individual elements varied within vary narrow limits. On the basis of the obtained results, equations were derived (which are given in the table) for inter-relating the hardness with other properties. It was found that the hardness could serve as a general criterion for determining whether the Ti sponge was satisfactory with respect to mechanical properties and chemical composition It is mentioned in an editorial note that this is one of the first attempts to apply mathematical statistics in metallurgy, There are 3 figures, 1 table and 7 references: 6 Soviet bloc and 1 non-Soviet-bloc. The English-language reference mentioned is: Ref. 3L K. Teibor - Iron Steel Inst., 1932, 20, 140/146.

Card 344

Cable: Cunction	Argument	gation	ation		Eq. expressing linear rel- ation	
ltimate strength, ob	Hardness			cient		
Elongation, ô	Hardness	110-50	0.8057	-0.7879	δ=-0.642 H <sub>B</sub> + +123.51	
Elongation, δ	Hardness	units H <sub>B</sub>	0.504	-0,420	δ=-0.076'H <sub>B</sub> + +38.26 Ψ=-0.484'H <sub>B</sub> + +138.4	
Contraction, 4	Hardness	110-170 units H <sub>p</sub>	0.912	-0.895	$\Psi = -0.484' H_B + 138.4$	Ý
Contraction, Y		170-210 <sup>D</sup>			$\psi = -0.25$ ; H <sub>B</sub> + + + + + + + + + + + + + + + + + + +	2.1
Hardness "	Content N <sub>2</sub> " O <sub>2</sub> " Fe	,% 0.01-0.0 ,% 0.03-0.1 ,% 0.02-0.3	42 0.3711 5% 0.309 0% 0.597	0.3587 1 0.2536 2 0.5936	$H_B = 609.5\%N_2 + 125.5$ $H_B = 119.9\%0_2 + 125.8$ $H_B = 164.5\%Fe + 125.6$	

3254° S/136/62/000/001/005/005 E073/E335

# Table (cont.)

\*\* Since only a few Ti ingots with a hardness of 170 - 210 units H<sub>B</sub> were available, the correlation analysis of the relation between hardness and contraction was not carried out in this range; this formula was determined empirically.

Card 4/4

s/137/62/000/006/034/163 A006/A101

AUTHORS:

Lukashenko, E. Ye., Kramnik, V. Yu., Garmata, V. A., Sergiyenko, S.N.

TITLE:

Development and assimilation of magnesium-thermal reduction of titanium tetrachloride in retorts without an inserted reaction

beaker

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1962, 14, abstract 6G100 (In collection: "Titan i yego splavy", no. 6, Noscom, AN SSSR, 1961,

23 - 25)

Industrial experiments of reducing and vacuum-separating TiClh in TEXT; retorts without beakers make it possible 1) to raise the coefficient of useful utilization of the reactor volume from 35 - 40 to 50 - 60%, and the cyclic yield of Ti-sponge by 50 - 60%; 2) to raise the hourly output of reduction and separation furnaces by 30 - 50%; 3) to raise the labor efficiency of the main production staff by 30% in this conversion department. Moreover, apparatus without beakers assure the production of high-quality Ti-sponge.

[Abstracter's note: Complete translation]

G. Svodtseva

Card 1/1