ZORIN, A.D.

USSR/Atomic and Molecular Physics - Statistical Physics. Thermo- D-3
dynamics.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 8986

Author : Devyatykh, G.G., Zorin, A.D.
Inst : Gor'kiy University
Title : Determination of the Relative Vapor Pressures of $C^{13}H_4$ and O_2^{18} by the Rayleigh Distillation Method.

Orig Pub : Zh. fiz. khimii, 1956, 30, No 5, 1133-1139

Abstract : The Rayleigh distillation method was used to determine the relative vapor tension of $C^{13}H_4$ and O_2^{18} in the temperature range from the normal boiling point to the triple point. The results of the measurements are expressed by the following equations:

$$\ln(P_{C^{12}H_4}/P_{C^{13}H_4}) = 0.00396 + 0.6686/T,$$

$$\ln(P_{O_2^{16}}/P_{O_2^{18}}) = 0.849/T - 0.00045.$$

In the authors' opinion, CH_4 is best used for concentrating C^{13} by the fractional distillation method; to use O_2 for the concentration of O^{18} makes no sense (it is more convenient to fractionalize the water).

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ZORIN, A. D.

PHASE I BOOK EXPLOITATION SOV/1297

Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke, Moscow, 1957

Polucheniye izotopov. Moshchnyye gamma-ustanovki. Radiometriya i dozimetriya; trudy konferentsii... (Isotope Production. High-energy Gamma-Radiation Facilities. Radiometry and Dosimetry; Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science) Moscow, Izd-vo AN SSSR, 1958. 293 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR; Glavnoye upravleniye po ispol'zovaniyu atomnoy energii SSSR.

Editorial Board: Frolov, Yu.S. (Resp. Ed.), Zhavoronkov, N.M. (Deputy Resp. Ed.), Aglintsev, K.K., Alekseyev, B.A., Bochkarev, V.V., Leshchinskiy, N.I., Malkov, T.P., Sinitsyn, V.I., and Popova, G.L. (Secretary); Tech. Ed.: Novichkov, N.D.

PURPOSE: This collection is published for scientists, technologists, persons engaged in medicine or medical research, and others concerned with the production and/or use of radioactive and stable isotopes and radiation.

COVERAGE: Thirty-eight reports are included in this collection under three main subject divisions: 1) production of isotopes 2) high-energy gamma-radiation facilities, and 3) radiometry and dosimetry.

TABLE OF CONTENTS:

PART I. PRODUCTION OF ISOTOPES

Card 2/12

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SOV/156-58-4-28/49

AUTHORS: Devyatykh, G. G., Zorin, A. D., Yezheleva, A. Ye.

TITLE: The Analysis of the Mixture of Divinyl, the Isomers of Butane and Butylene by the Method of Gas-Liquid Distribution Chromatography (Analiz smesi divinila, izomerov butana i butilena metodom gazo-zhidkostnoy raspredelitel'noy khromatografii)

PERIODICAL: Nauchnyye doklady vysshey shkoly. Khimiya i khimicheskaya tekhnologiya, 1958, Nr 4, pp 724-726 (USSR)

ABSTRACT: In the present paper a new method of analyzing the mixtures of divinyl, the isomers of butane and butylene by means of the gas-liquid distribution chromatography was described. The apparatus is described and the method is given in detail. Nitrogen was used as elution gas and kieselguhr with the grain size 0.1-0.25 mm was used as adsorbing agent. The following solvents were used: dimethyl formamide, saturated solution of $AgNO_3$ in ethylene glycol, furfurole and nitrobenzene. The chromatographs of the mixtures are given in table 1 and 2. The maximum length of the column is 5m. A complete separation of the component is obtained in the following way: The first part of the column,

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The Analysis of the Mixture of Divinyl, the Isomers of Butane and Butylene by the Method of Gas-Liquid Distribution Chromatography

1.5m in length, contains saturated silver nitrate in ethylene glycol as solvent. The second part of the column, 3m in length, contains furfurole as solvent. The accuracy of the method was checked by means of the synthetic mixtures and it was ascertained that the relative error in the determination is 2-3% and that the preparation of the chromatographs taken 25 min. There are 3 figures, 1 table, and 1 reference.

ASSOCIATION: Kafedra neorganicheskoy khimii Gor'kovskogo gosudarstvennogo universiteta im. N. I. Lobachevskogo (Chair of Inorganic Chemistry at the Gorkiy State University imeni N. I. Lobachevskiy)

SUBMITTED: April 25, 1958

32-24-4-56/67

AUTHORS: Devyatykh, G.G., Zorin, A.D.

TITLE: A Laboratory Rectification Column for the Separation of Higher-Boiling Admixtures (Laboratornaya rektifikatsionnaya kolonna dlya vydeleniya vysokipyashchikh primesey)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 4, pp. 496-497 (USSR)

ABSTRACT: A rectification column with an effect of more than 100 "ideal plates" is described. It follows from a schematical drawing that the column, which is made of molybdenum glass, is spiral-shaped in its lower part in order to compensate the thermal expansion of glass, and that the evaporizer (with a volume of about 150 ml) contains small rings made of Ni/Cr-wire for the purpose of increasing the surface, as well as a discharge cock for high-boiling components and a manometer. The lower part of the column as well as its upper end each contain a contact thermometer. The column is heated in four stages, viz. evaporizer, the column casing above and below, and the rectification part, for which purpose it is recommended that a certain temperature be provided for each of the aforementioned parts by means of automatic temperature adjustment with the aid of the contact thermometers and electromagnetic

Card 1/2

A Laboratory Rectification Column for the Separation of Higher-Boiling Admixtures

32-24-4-56/67

relays. A schematical plan of the current supply for the column is given. The headpiece of the column is also filled with rimlets made from Ni/Cr-wire. Heat insulation is brought about by a silvered evacuated tube as well as by an asbestos insulation on the outer casing. In the upper part of the column there is a container with a holding capacity of two liters into which the liquid is filled through the cooler, whereas a heater is fitted to the lower part of the container, which warrants a convective mixture of the liquid. At the side of the container a feedpipe leading to and from the column is fitted: above for the condensate flowing in, and below for the feeding of the column. In order to determine the number of "ideal plates" the differential method with a benzene-dichloroethane mixture was carried out. A.S.Kamelik and N.Ka.Aplindar assisted in these investigations. There are 5 figures, and 4 references, 3 of which are Soviet.

ASSOCIATION: Institut khimii pri Gor'kovskom gosudarstvennom universitete (Institute for Chemistry of Gor'kiy State University)

1. Towers (Chemistry)--Design 2. Towers (Chemistry)--Equipment
3. Towers (Chemistry)--Applications

Card 2/2

ZORIN, A.D

DEVYATYKH, G.G.; ZORIN, A.D.; NIKOLAYEV, N.I.

Study of carbon and oxygen isotope distribution by the fractional distillation of the oxides of carbon, methane and molecular oxygen. Zhur.prikl. khim. 31 no.3:368-375 Mr '58. (MIRA 11:4)
(Carbon--Isotopes) (Oxygen--Isotopes) (Distillation, Fractional)

KARABANOV, N.T.; ZORIN, A.D.

Equilibrium between liquid and vapor in binary and ternary systems formed by divinyl with isomers of n-butane and butylene. Trudy po khim.i khim.tekh. no.13-14, '64.
(MIRA 18:12)

1. Submitted July 9, 1963.

BEZIKOVICH, A.Ya.; ZORIN, D.I.

Voltage-ampere-ohm meter for audio and ultrasonic frequencies. Trudy inst. Kom. stand., mer. i izm. prib. no.74:50-66 '63. (MIRA 18:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii im. D.I.Mendeleyeva.

KRASNOVA, S.G.; ZORIN, A.D.; TUDANOVA, L.V.

Vapor pressure of binary solutions formed by monochloro-arsine, monogermane, and phosphine. Zhur.fiz.khim. 39 no.10:2440-2444 O '65. (MIRA 18:11)

1. Gor'kovskiy gosudarstvennyy universitet imeni Lobachevskogo. Submitted July 1, 1964.

CHAPCHAYEV, A., kand. tekhn. nauk; NAUMOV, S., inzh.; ZORIN, A., inzh.; POLETAYEV, R.

Helical steel piston rings. Avt. transp. 43 no.4:30-33 Ap '65. (MIRA 18:5)

ZORIN, A.D.; DEVYATYKH, G.G.; DUDOROV, V. Ya.; ANGEL'CHENKO, N.M.

Analysis of mixtures of some volatile inorganic hydrides by gas-liquid partition chromatography. Zhur. neorg. khim. 9 no.11: 2526- 2531 N '64 (MIRA 18:1)

ZORIN, A.D.; DEVYATYKH, G.G.; KRUPNOVA, E.F.; KRASNOVA, S.G.

Vapor pressure of liquid monosilane and its mixtures with ethylene. Zhur. neorg. khim. 9 no.10:2280-2283 O '64. (MIRA 17:12)

1. Gor'kovskiy gosudarstvennyy universitet im. N.I. Lobachevskogo.

DEVYATYKH, G.G.; ZORIN, A.D.; AMEL'CHENKO, A.M.; LYAKHMANOV, S.B.; YEZHELEVA, A.Ye.

Chromatographic analysis of mixtures formed by some volatile inorganic hydrides. Dokl. AN SSSR 156 no. 5:1105-1108 Je '64. (MIRA 17:6)

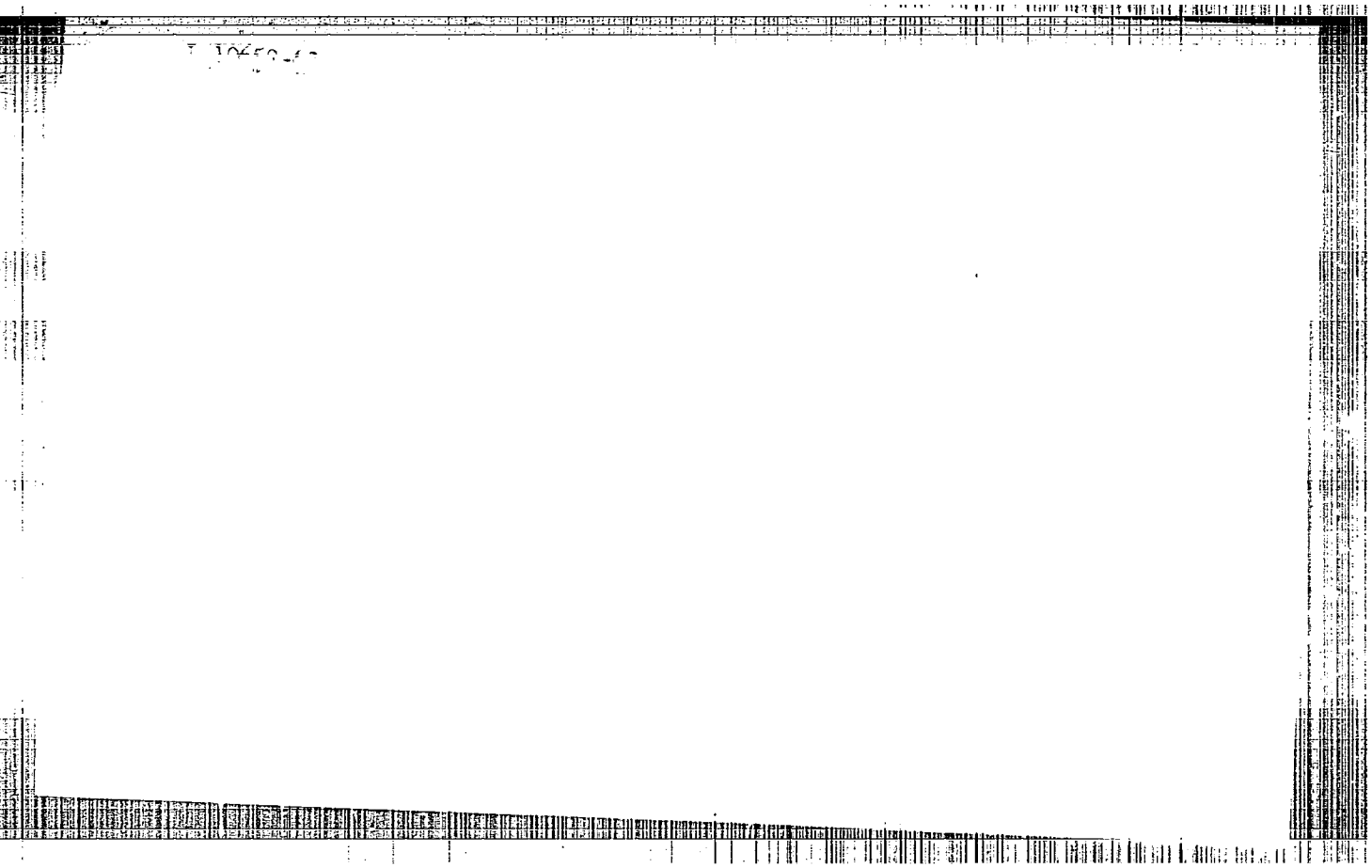
1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete im. N.I.Lobachevskogo. Predstavleno akademikom N.M.Zhavoronkovym.

ZORIN, A. D.

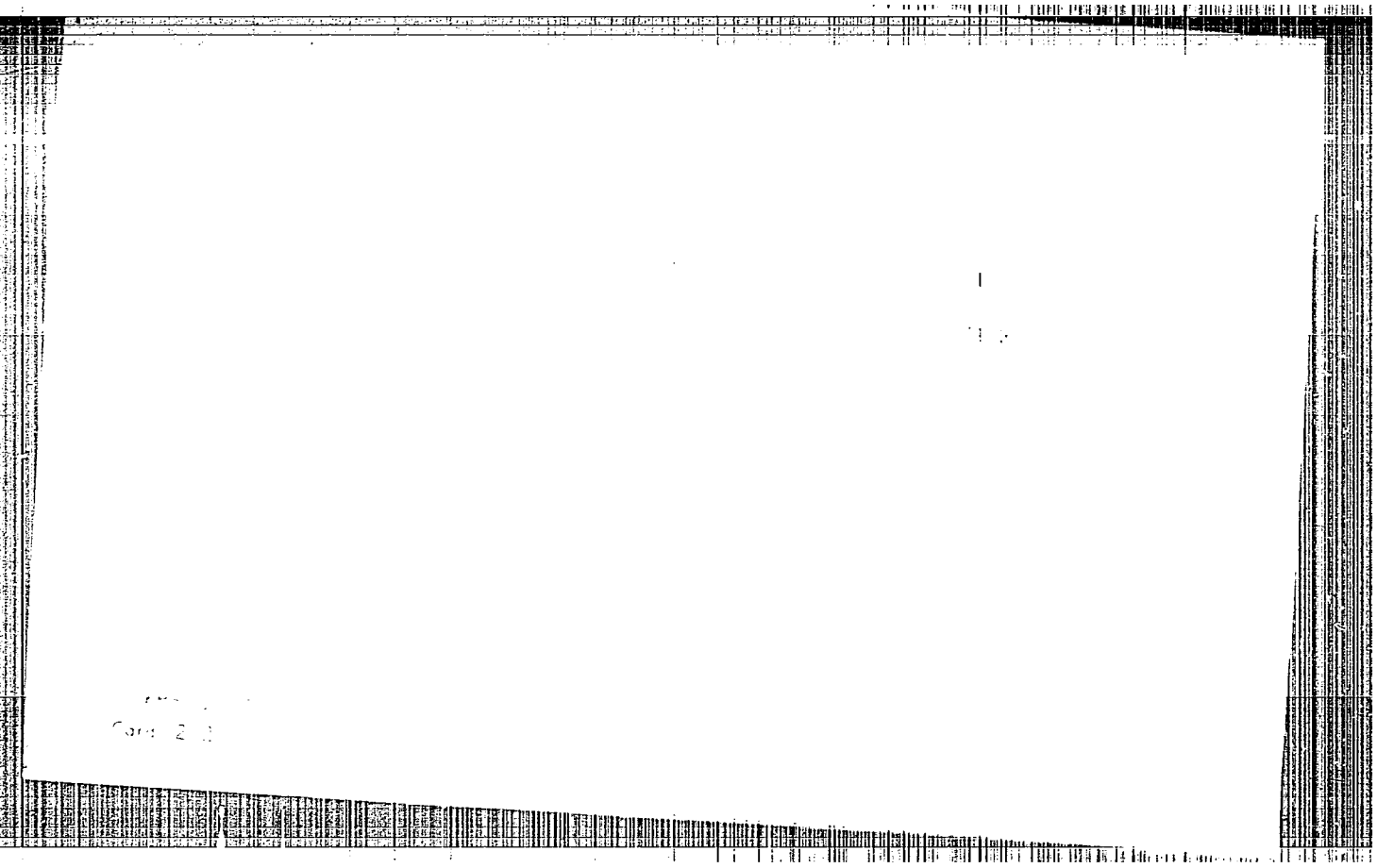
The Second All-Union Conference on the Preparation and Analysis of High-Purity Elements, held on 24-28 December 1963 at Gorky State University im. N. I. Lobachevskiy, was sponsored by the Institute of Chemistry of the Gorky State University, the Physicochemical and Technological Department for Inorganic Materials of the Academy of Sciences USSR, and the Gorky Section of the All-Union Chemical Society im. D. I. Mendeleyev. The opening address was made by Academician N. M. Zhavoronkov. Some 90 papers were presented, among them the following:

N. V. Larin, G. G. Devyatykh, and I. L. Agafonov — a spectrochemical — and A. D. Zorin and A. M. Amel'chenko — a chromatographic control method of Si purification by determination of extraneous volatile hydrides in monosilane.

(Zhur Anal. Khim, 19, No.6, 1964 p.777-79)



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R002065420018-3"



KEDYARKIN, V.M.; ZORIN, A.D.

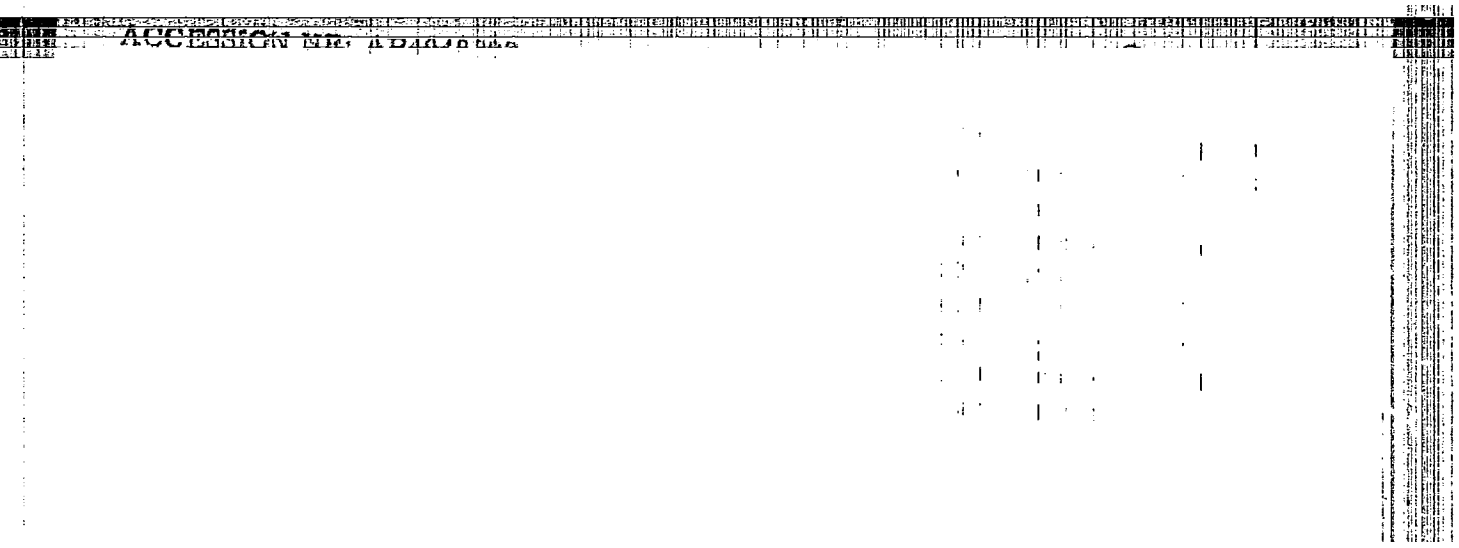
Laboratory low temperature rectification column. Zav.lab. 29 no.4:509 '63. (MIRA 16:5)

1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete.
(Distillation apparatus)

ZORIN, A.D.; YEZHELEVA, A.Ye.; DEVYATYKH, G.G.

Determination of the solubility of gases by the method of gas-liquid partition chromatography. Zav. lab. 29 no. 6:659-662 '63. (MIRA 16:6)

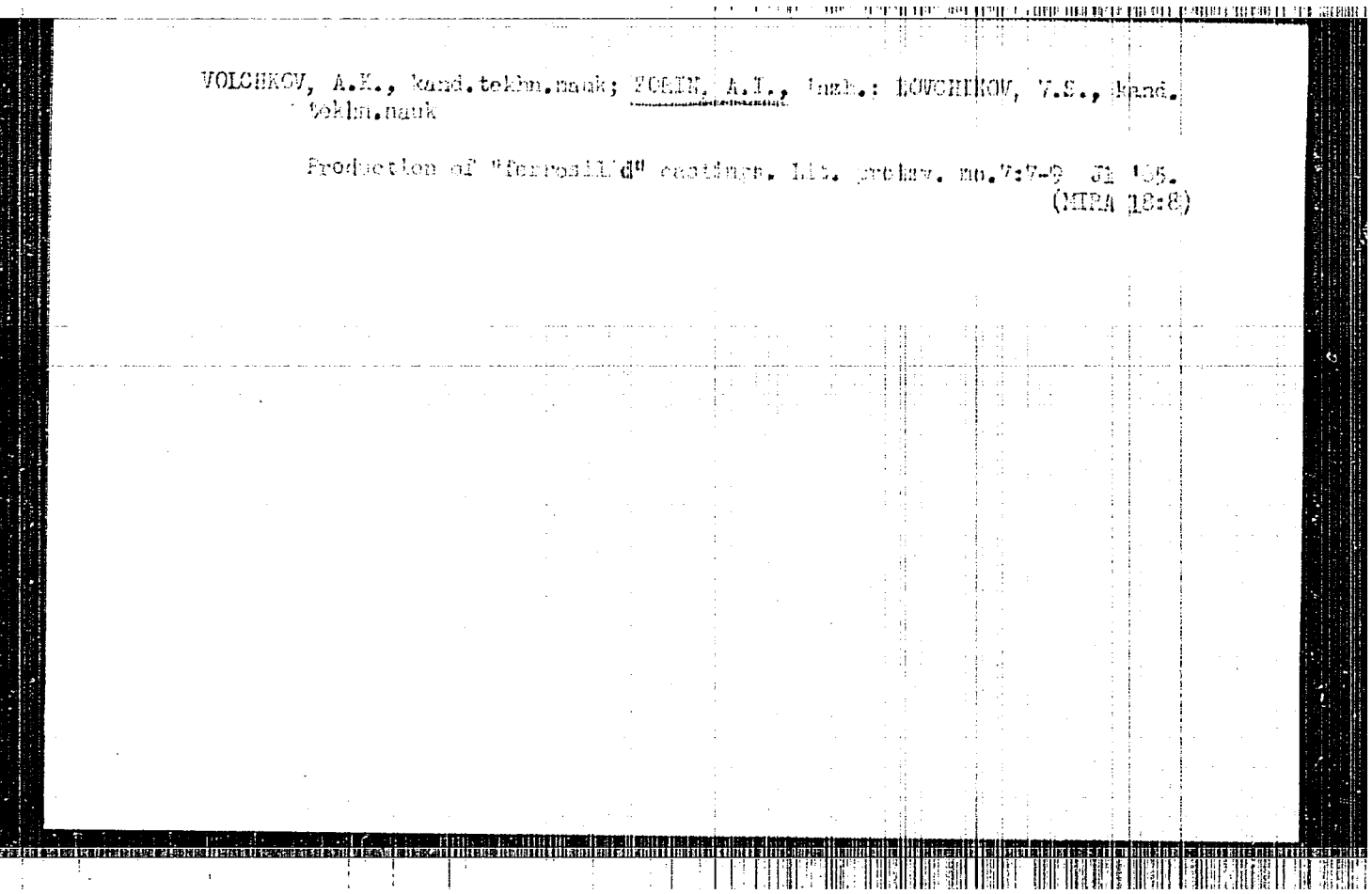
1. Nauchno-issledovatel'skiy institut khimii pri Gor'kovskom gosudarstvennom universitete.
(Gases) (Solubility)
(Gas chromatography)



ZORIN, A.I.

Making ferrosilicon carbide castings. Lit. proizv. no.6: 12-13 Je '63. (MIRA 16:7)

(Ferrosilicon) (Founding)



VOLCHKOV, A.K., kand.tekhn.nauk; VOLIN, A.I., inzh.; LOVCHIKOV, V.S., kand.tekhn.nauk

Production of "ferrosilid" castings. Lit. proizv. no.7:7-9 Jl '55. (MIRA 18:8)

ZORIN, A.I.

Exothermic riser heads on steel castings. Lit.proizv. no.7:35 Jl '62. (MIRA 16:2)

(Risers (Founding))

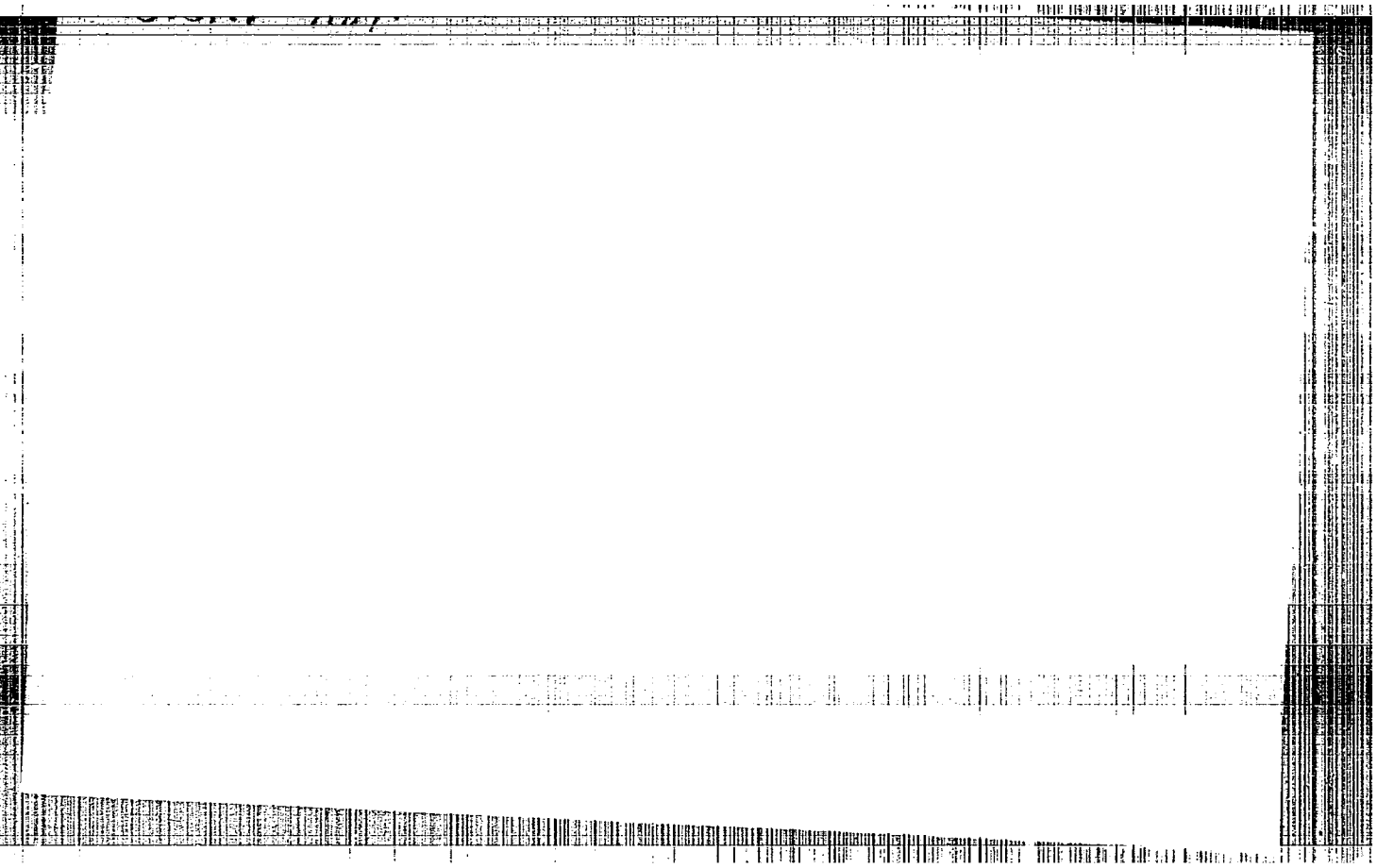
ZORIN, A.I.; TSEVEL'NEV, B.V.

Obtaining high-grade cast iron by double inoculation. Lit. proizv. no.2:45 F '63. (MIRA 16:3)
(Cast iron--Metallurgy)

ZORIN, A.M., kand. sel'skokhozyaystvennykh nauk; KOCHENOV, D.A., mladshiy nauchnyy sotrudnik.

Age of cows at the first calving and their rating by yields of the first lactation period. Zhivotnovodstvo 20 no.6:64-67 Je '58. (MIRA 11:6)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut zhivotnovodstva.
(Cow testing)



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R002065420018-3"

ZORIN, Aleksey Mikhaylovich

CHEREDOV, Sergey Vladimirovich, inzhener; MEDVINSKIY, Moisey Davydovich, inzhener; [illegible]; MDAL'TSOV, A.F., glavnyy redaktor; SHTEYNBOK, G.Yu., inzhener, redaktor

IT-10-55 ten-channel impulse tensometer] Desiatikanal'nyi impul'snyi tenzometr IT-10-55. Moskva, Akad.nauk SSSR, 1956. 28 p. (Pribory i stendy. Tema 1, no. P-56-467) (MLRA 10:10)
(Strain gauges)

GEORGIYEVSKIY,M.B.; ZORIN,A.M.; MEDVINSKIY,M.D.; CHEREDOV,S.V.

Equipment for measuring dynamic strains by wire strain gauges.
[Trudy] TSNIITMASH no.68:33-51 '54. (MLRA 8:8)
(Strain gauges)

ZOREN, A.M., elektromonter

Automatic switching-in of discharge resistors. Energetik 9 no.9:24 S '61. (MIRA 14:9)
(Electric networks) (Electric resistors) (Electric protection)

BELAYENKO, F.A., prof.; GLUSHKO, V.T., inzh.; ZORIN, A.N., inzh.

Measuring the rock pressure on ring supports. Ugol' Ukr. 6 no.2:16-17 F '62. (MIRA 15:2)

1. Dnepropetrovskiy gornyy institut.
(Mine timbering)
(Rock pressure—Measurement)

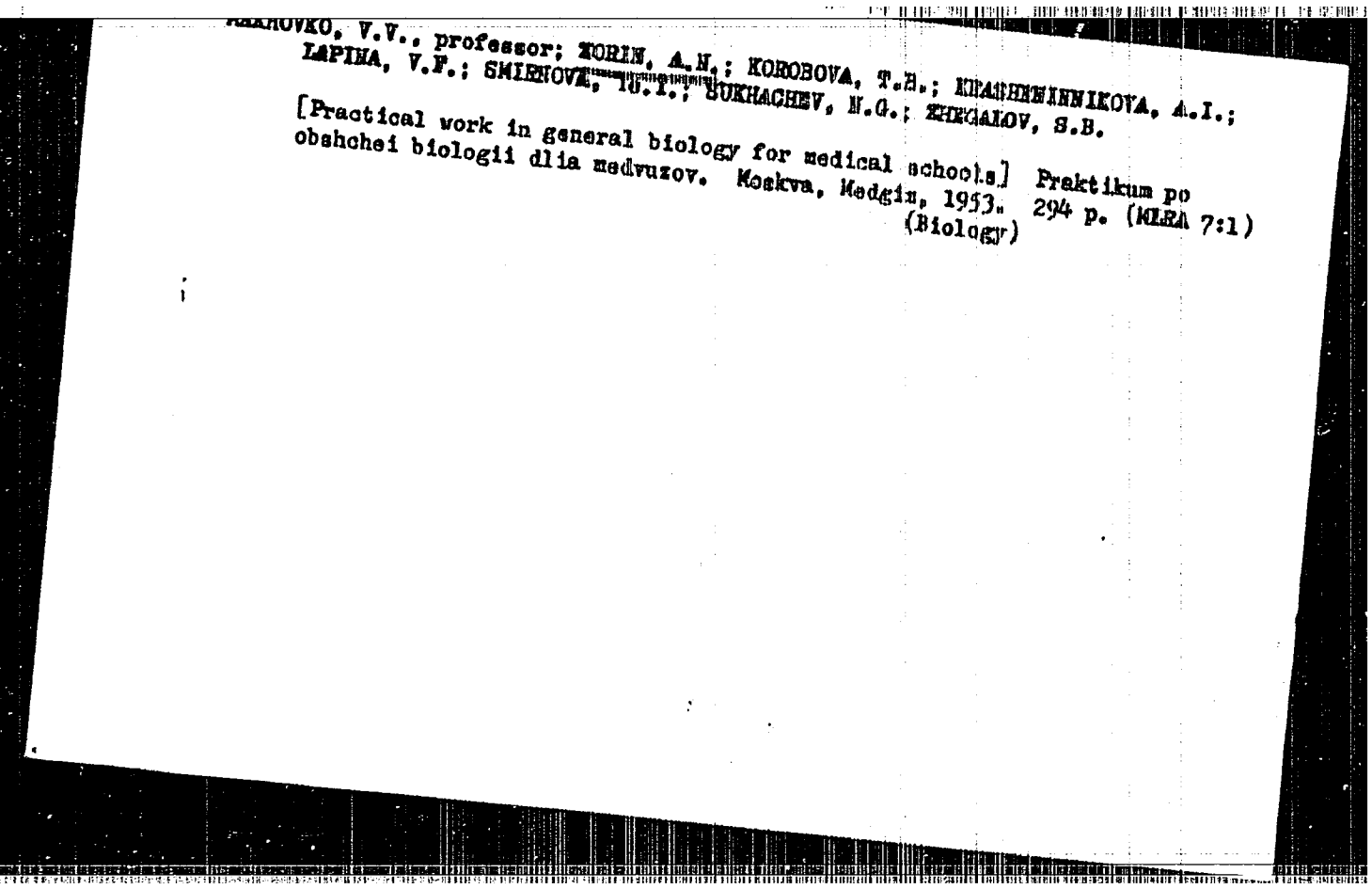
ZORIN, A.M.; ROZOVSKIY, M.I.

Method for the interpretation of the irrational function of an integral operator. Prikl. mekh. 1 no.9:81-88 '65.
(MIRA 18:10)

1. Dnepropetrovskiy gornyy institut i Donetskiy nauchno-issledovatel'skiy ugol'nyy institut.

ZORIN, A.N.

Mitotic activity of the epithelium of the Lieberkühn crypts and the cornea in starvation and following administration of nutrien substances. Uch.zap. 2-go MGMI 16:201-216 '58. (MIRA 13:6)
(KARYOKINESIS) (INTESTINES) (CORNEA) (STARVATION)
(PARENTERAL THERAPY)



[illegible]HOVKO, V.V., professor; TORIN, A.N.; KOROBOVA, T.B.; KRASHENINNIKOVA, A.I.; LAPINA, V.F.; SMIRNOVA, Yu.I.; SUKHACHEV, N.G.; ZHEGALOV, S.B.

[Practical work in general biology for medical schools.] Praktikum po obshchei biologii dlia medvuzov. Moskva, Medgiz, 1953. 294 p. (MLRA 7:1)
(Biology)

ZORIN, A.N.

Character of the distribution of mitotic figures in the Lieberkühn crypts of mammalian intestines. Uch.zap. 2-go MGMI 16: 192-200 '58. (MIRA 13:6)

(KARYOKINESIS) (INTESTINES)

ZORIN, A.P., inzh.

Mechanical filters for suction-type dischargers of cement. Sbor. trud.VNIIStroidormash.Lenfil. no.16:78-89 '57. (MIRA 12:7)
(Air filters) (Cement--Transportation)

ACC NR: AP6032949 SOURCE CODE: UR/0363/66/002/010/1816/1819

AUTHOR: Zorin, A. P.; Zorina, M. L.

ORG: Leningrad Technological Institute im. Lensoveta (Leningradskiy tekhnologicheskiy institut)

TITLE: Some properties and the structure of glass of the system barium oxide—silicon dioxide—titanium dioxide

SOURCE: AN SSSR. Izvestiya, Neorganicheskiye materialy, v. 2, no. 10, 1966, 1816-1819

TOPIC TAGS: glass, titanium dioxide, glass structure, glass property, titanium containing glass

ABSTRACT: A study was made of the effect of titanium dioxide on the structure and properties of glass of the system $BaO—TiO_2—SiO_2$. The results obtained show that the displacement of the main absorption band maximum with changes in the amount of silicon dioxide in titanium-containing glass is linear in pattern. Orig. art. has: 1 table and 3 figures. [Authors' abstract]

SUB CODE: 07, 11/ SUBM DATE: 10Jan66/ ORIG REF: 002/ OTH REF: 012/

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UDC: 666.01

ZORIN, Aleksandr Stepanovich; LOBASOV, P.D., kand.tekhn.nauk, nauchnyy red.; Prinimal uchastiye KATS, M.F., KAPLAN, M.Ya., red.izd-va; PUL'KINA, Ye.A., tekhn.red.

[Designing tailings disposal departments of dressing plants; a handbook] Proektirovanie khvostovogo khoziaistva obogatitel'nykh fabrik; spravochnoe posobie. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1960. 115 p. (MIRA 13:3)
(Hydraulic engineering)

VASIL'YEV, P.V., prof., doktor ekon. nauk; PONOMAREV, A.D.; SOLMATOV, A.G., kand. sel'khoz. nauk; MOTOVILOV, G.P., doktor sel'khoz. nauk; NEVZOROV, N.V., kand. ekon. nauk; LOSITSKIY, K.B., kand. sel'khoz. nauk; RODIONOV, A.Ya., kand. sel'khoz. nauk; CHARKINA, A.P., kand. sel'khoz. nauk; LUTSEVICH, A.A., kand. sel'khoz. nauk; KOZHEVNIKOV, M.G., dots.; ALEKSEYEV, P.V., kand. sel'khoz. nauk; ZORIN, A.V., aspirant; BARANOV, N.I., kand. sel'khoz.nauk [deceased]; NAUMENKO, I.M., prof., doktor sel'khoz.nauk; IL'IN, A.I., kand.sel'khoz. nauk; MOISEYENKO,F.P., kand. biol. nauk; ZAKHAROV, V.K., prof., doktor sel'-khoz. nauk; GECHIS, Yu.P., starshiy nauchnyy sotr.; BUTENAS, Yu.P., kand. sel'khoz. nauk; BUBLIS, K.A., aspirant; KALNIN'SH, A.Ya., kand. sel'khoz. nauk; ZVIYEDRIS, A.I., kand. sel'khoz. nauk; SUKACHEV, V.N., akad. red.; ZHUKOV, A.B., prof., red.; PRAVDIN, L.F., prof., red.; MAKAROVA, L.V., red. izd-va; LOBANKOVA, R.Ye., tekhn. red.

[Problems of increasing forest productivity in four volumes] Problemy povysheniia produktivnosti lesov v chetyrekh tomakh. Moskva, Goslesbumizdat. Vol.4.[Economic problems of increasing forest productivity and accelerating ripening and cutting ages]Ekonomicheskie voprosy povysheniia produktivnosti lesov, vozrasty spelosti i vozrasty rubok. 1961. 253 p. (MIRA 15:1)

1. Akademiya nauk SSSR. Institut lesa. 2. Nachal'nik Glavnoy inspektsii po lesnomu khozyaystvu i polezashchitnomu lesorazvedeniyu Ministerstva sel'skogo khozyaystva SSSR (for Ponomarev).

(Forests and forestry--Economic aspects)

ZORIN, Aleksandr Vasil'yevich; PEREPECHIN, B.M., red.; KAL'TSKVA, L.S., tekhn. red.

[Organization of forestry in shelterbelts along railroads and highways] Organizatsiia lesnogo khoziaistva v lesakh zashchitnykh polos vdol' zheleznykh i shosseinykh dorog. Moskva, Goslesbumizdat, 1960. 56 p. (MIRA 14:10)

(Windbreaks, shelterbelts, etc.)

KHAYASI, K.[Hayashi, K.]; ANDO, T., prof.; KIMURA, K.; ZLOBINOV, V.A., [translator]; ZORIN, A.Ye. [translator]; LEVIN, L.Z. [translator]; PASHKOVSKIY, A.A. [translator]; SMIRNOV, P.I., red.; BUKOVSKAYA, N.A., tekhn. red.

[Ordnance rockets and Japan; military bases are a war threat] Raketnoe oruzhie i IAponiia; voennye bazy - ugroza miru. Vstup. stat'ia i kommentarii B.G.Sapozhnikova. Moskva, Voen. izd-vo M-va oborony SSSR, 1961. 246 p. Abridged translation from the Japanese. (MIRA 15:2)

1. Tokiyskiy universitet (for Ando).
(Japan—Rockets (Ordnance))

ZORIN, B.

Radio communication in the Lanchin machine tractor station.
Radio no.2:11 F '54. (MLRA 7:2)

1. Zamestitel' nachal'nika politotdela Mashinno-traktornoy stantsii.
(Lanchin--Radio) (Radio--Lanchin)

BEZIKOVICH, A. Ya.; ZORIN, D.I.

Multilimit high-precision thermoelectric devices for operation in the audio frequency band. Trudy inst. Kom. stand., mer i izm. prib. no. 39:119-129 '60. (MIRA 14:3)
(Electric meters)

SOV/112-57-6-12560

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1957, Nr 6, p 135 (USSR)

AUTHOR: Bezikovich, A. Ya., Zorin, D. I.

TITLE: Outfit for Checking A-C Ammeters, and Voltmeters at Commercial and Higher Frequencies (Ustanovka dlya poverki vattmetrov, ampermetrov i vol'tmetrov na peremennom toke normal'noy i povyshennoy chastoty)

PERIODICAL: Tr. Vses. n.-i. in-ta metrologii, 1956, Nr 28, pp 20-35

ABSTRACT: A description is given of the type UV outfit developed by Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii (VNIIM) (All-Union Research Institute of Metrology, VNIIM), im. D. I. Medeleyev and built by the "Etalon" Plant (Leningrad). The output depends for its operation on a thermoelectric method of comparing AC in a wide frequency range with DC. A thermoelectric power comparator (TEKM) is the fundamental component of the outfit. Results of investigations of individual subassemblies are presented. The upper limits of the measuring range of the UV outfit are 10 amp and 300 v. Basic errors of

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Outfit for Checking Wattmeters, Ammeters, and Voltmeters at Commercial . . . .

power measurements at frequencies up to 10,000 cps do not exceed 0.2% at a unity power factor and 0.3% at a 0.5 power factor; they do not exceed 0.1% when currents and voltages are varied within the frequency range up to 20,000 cps.

M.Kh.Sh.

ZORIN, D.I.; BRODSKIY, A.M.

Bridge-comparators used for measuring capacitance. Izm. tekh. no.3: 61-64 My-Je '57. (MLRA 10:8)
(Electric capacitance--Measurement) (Wheatstone bridge)

83630
S/058/60/000/005/004/008
A005/A001

9.6130

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 5, p. 187, # 11596

AUTHORS: Zorin, D.I., Spektor, S.A.

TITLE: The Determination of the Constants of a Measurement Unit for Measuring High-Intensity Direct Currents by the Nuclear Magnetic Resonance Method

PERIODICAL: Nauchno-tekhn. inform. byul. Leningr. politekhn. in-t, 1959, No. 3, pp. 45-47

TEXT: The authors propose a method of calibrating primary transducers for measuring high-intensity direct currents by the nuclear magnetic resonance method. They use the comparison of measurement units designed for various ranges of currents to be measured. The advantage of the method consists in the fact that it does not require the exact measurement of the geometric dimensions of the transducers and, consequently, their precise treatment.

N.M. Pomerantsev

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

ZORIN, D.I.; BRODSKIY, A.M.

Bridge for measurement of small capacitances at radio frequencies. Trudy VNIIM no.38:40-44 '59. (MIRA 13:4)
(Electric measurements) (Bridge circuits)

BEZIKOVICH, A.Ya.; ZORIN, D.I.; KAYANDER, M.S.

Frequency errors in wattmeters. Trudy VNIIM no.38:103-109 '59. (MIRA 13:4)
(Wattmeter)

ZORIN, D.I.

PHASE I BOOK EXPLOITATION SOV/4407

Akademiya nauk Ukrainskoy SSR. Institut elektrotekhniki

Voprosy obshchego elektropriborostroyeniya (Overall Problems of the Electric Instrument Industry) Kiyev, 1960. 8?2 p. 3,000 copies printed.

Additional Sponsoring Agency: Nauchno-tekhnicheskoye obshchestvo priborostroitel'noy promyshlennosti. Ukrainskoye respublikanskoye pravleniye.

Editorial Board: A. D. Nesterenko, Corresponding Member, Academy of Sciences Ukrainskaya SSR (Resp. Ed.), M. I. Levin, Doctor of Technical Sciences, P. P. Ornatskiy, Candidate of Technical Sciences, V. P. Petrochenko, Candidate of Technical Sciences, A. F. Gorodovskiy, Engineer, S. Sh. Zaslavskiy, Engineer, and R. A. Seliver; Ed. of Publishing House: B. A. Kazantsev; Tech. Ed.: M. I. Yefimova.

PURPOSE: This book is intended for technical personnel working in the field of electric measurement techniques, in electrical instrument plants, in laboratories of electric power systems and in electric measurement laboratories of plants.

COVERAGE: This is a collection of reports presented at a conference on the overall development of the Soviet electrical instrument industry held in Kiyev on October 23-27, 1956. The conference was convened by the Institut elektrotekhniki AN USSR (Institute of Electrical Engineering, Academy of Sciences UkrSSR) and the Ukrainskoye respublikanskoye pravleniye NTO priborostroitel'noy promyshlennosti (Ukrainian Republic Administration of NTO of the Instrument-making Industry). Problems relating to electrical instrument-making as a whole (reports by A. D. Nesterenko, P. P. Ornatskiy, Ya. S. Averbukh, Ye. G. Shramkov) were discussed, as well as problems relating to the development of reference instruments (Ya. S. Averbukh, I. K. Khodeyev), the automation of electric-measuring circuits (A. Ya. Shramkov, L. Ya. Mizyuk) and to the theory and practice of magnetic measurements (N. N. Shol'ts, G. L. Gornshteyn). Attending the conference were workers of scientific research institutes and schools of higher education, along with representatives of the main electric instrument plants ("Vibrator" in Leningrad, "Tochelektropribor" in Kiyev, "Omelektrotochpribor" in Omsk, ZIP in Krasnodar and others) and of various electric power systems. No personalities are mentioned. References accompany ten of the reports.

Card 6/12

L 14025-66 EWT(1)/EEC(k)-2/EWA(h)

ACC NR: AP6000029 SOURCE CODE: UR/0115/65/000/010/0008/0011

AUTHOR: Bezikovich, A. Ya.; Belyayeva, M. S.; Zorin, D. I.; Erkin, S. P.

ORG: none

TITLE: Universal high-accuracy outfit for checking ammeters, voltmeters, and wattmeters at acoustic frequencies

SOURCE: Izmeritel'naya tekhnika, no. 10, 1965, 8-11

TOPIC TAGS: acoustic frequency, measuring instrument

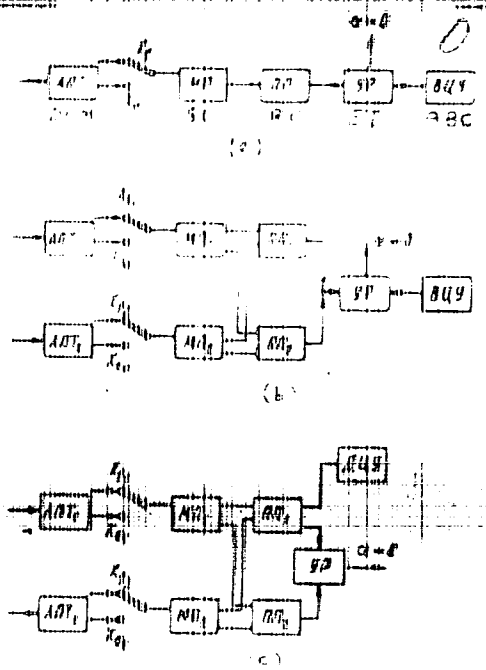
ABSTRACT: New equal-quantity comparators are described in which the a-c [illegible] and the corresponding d-c quantity are applied to a reversing converter [illegible] comparators are shown [illegible] for [illegible] voltage [illegible] power [illegible] accuracy [illegible]

Card 1/2 UDC: 621.317.714.089.6 + 621.317.725.089.6 + 621.317.784.089.6

2

L 14025-66
ACC NR: AP6000029

equipment. An equilibrium indicator (EI) [illegible] meter and an amplifier. This outfit permits checking 0.1%-error instruments at 0.05—2.5 kc, 0.2%-error instruments at 2.5—20 kc, and low-[illegible] wattmeters having [illegible] at 0.05—10 kc. Orig. art. has: 2 figures.



SUB CODE: 09 / SUBM DATE none / ORIG REF: 007

Card 2/2

L 44440-66 EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AR6025792 SOURCE CODE: UR/0058/66/000/004/H056/H056

AUTHOR: Zorin, D. I.; Ivanova, L. F.; Chernysheva, N. G.; Shramkov, Ye. G.

52
B

ORG: none

TITLE: Resonance bridge for determining magnetic characteristics of high-frequency soft magnetic materials 16
9M

SOURCE: Ref. zh. Fizika, Abs. 4Zh380

REF SOURCE: Tr. in-tov Gos. kom-ta standartov, mer i izmerit. priborov SSSR, vyp. 79(139), 1965, 65-75

TOPIC TAGS: measuring apparatus, dielectric , ferrite, high frequency, magnetic material, magnetism

ABSTRACT: A measuring apparatus is described for investigating samples of magnetodielectrics and ferrites with the greatest accuracy available with the present level of technology. An analysis of measuring accuracy is given, and recommendations are presented permitting the most accurate measurements. [NT]
[Translation of abstract]

SUB CODE: 14

Card 1/1 UDC

ACC NR: AT7000580 SOURCE CODE: UR/2589/65/000/078/0043/0048

AUTHOR: Brzhezinskiy, M. L.; Zorin, D. I.; Sverdlichenko, V. D.

ORG: VNIIM

TITLE: A photometric photoelectric microscope

SOURCE: USSR. Komitet standartov, mer i izmeritel'nykh priborov. Trudy institutov Komiteta, no. 78(138), 1965. Issledovaniya v oblasti lineynykh izmereniy (Research in the field of linear measurements), 43-48

TOPIC TAGS: ~~photoelectric~~ microscope, photoelectric method, photoelectric tracking, optic scanning, photoelectric scanning, automatic scale reading equipment, metrology

ABSTRACT: A photoelectric, line reading microscope is described. The block diagram of this instrument is shown in Figure 1. Scale *10* is illuminated by the light source *3* through the beam splitter *2* and the objective *1*. The scale plane is imaged by the relay lens system *4* into the plane of the optical chopper *5* (in the form of a vibrating split) driven by two electromagnets. A photodetector *6* receives the light from the optical scanning system and generates electrical signals proportional to the instantaneous values of the light flux. The photodetector output is amplified in the amplifier *7* and demodulated in a phase sensitive ring demodulator *8*. The resulting dc signal, proportional to the displacement of the microscope main axis from the center of

Card 1/3

the line being scanned, is displayed on a zero-center meter. When the instrument is properly calibrated and is operating correctly, the meter will indicate zero when the microscope axis coincides with the center of the line. The vibrating slit is driven at line frequency (50 Hz), hence the output of the photodetector (6) contains a fundamental frequency component at that frequency, as well as the second and higher harmonics. Since both the line image and the vibrating slit affect the light flux to the photodetector, the ratio of the second (and other even harmonics) to the fundamental (and other odd harmonics) depends on the relative position of the microscope optical axis to the center of the line. As the center of the line is approached this ratio increases until at coincidence no fundamental component is present in the signal. The phase of the fundamental with respect to the phase of the line frequency corresponds to the relative position--to the left, or to the right--of the scanning system with respect to the scale line. The ring demodulator, because it uses line frequency as reference,

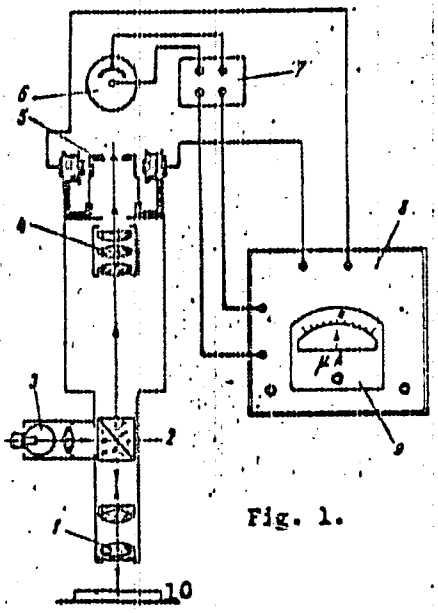


Fig. 1.

ACC NR: AT7000580

generates a dc signal with magnitude dependent on the instantaneous amplitude of the fundamental in the input signal, and the polarity determined by its phase. The design of the instrument is discussed in great detail, as are conditions which may cause improper operation. Several photoelectric scanning microscopes were produced and utilized successfully in interferometric comparators. Orig. art. has: 5 figures.

SUB CODE: 09,14/ SUBM DATE: 10Nov63/ ORIG REF: 003

Card 3/3

BEZIKOVICH, A.Ya.; BELYAYEVA, M.S.; ZORIN, D.I.; ESKIN, S.P.

Universal high-precision unit for testing ammeters, voltmeters and wattmeters at sonic frequencies. Izm.tekh. no.10:8-11 O '65. (MIRA 18:12)

ZORIN, D.I.

Electric and ferrodynamic wattmeters with amplifiers in the input circuits. Nov. nauch.-issl. rab. po metr. VNIIM no.6:5-8 '64. (MIRA 18:3)

BEZIKOVICH, A.Ya.; ZORIN, D.I.

Errors of transformations in thermowattmeters. Nov. mauch.-issl. rab. po metr. VNIIM no.6:16-17 '64. (MIRA 18:3)

ZORIN, D.I.; RODION, E.I.

Classification of phase-sensitive cascades by their output power. Izv. vys. ucheb. zav.; prib. 7 no.4:59-61 '64 (MIRA 18:1)

1. Leningradskiy politekhnicheskiy institut imeni M.I. Kalinina. Rekomendovana kafedroy elektroizmeritel'noy tekhniki.

BEZIKOVICH, A.Ya.; ZORIN, D.I.

Thermoelectric class 0.1 power measuring device. Trudy inst. Kom. stand. mer i izm. prib. no.67:39-49 '62. (MIRA 17:11)

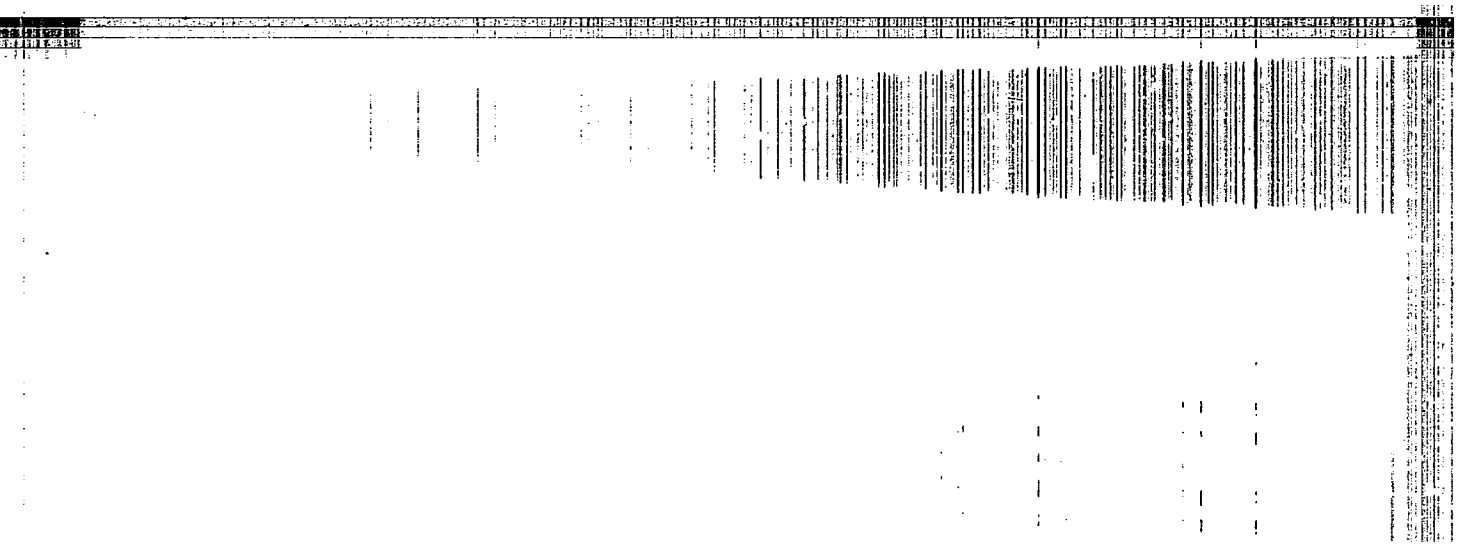
1. Vsesoyuznyy nauchno-issledovatel'skiy institut metrologii imeni Mendeleyeva.

ZORIN, D.I.; ESKIN, S.P.

Highly stable sonic frequency source. Nov.nauch.-issl.rab.po metr. VNIIM no.4:40-43 '64. (MIRA 18:3)

ZORIN, D.I.; IVANOVA, L.F.; CHERNYSHEVA, N.G.; SHRAMKOV, Ye.G.

Complete set of apparatus for testing high-frequency ferromagnetic materials. Nov.nauch.-issl.rab.po.metr. VNIIM no.5:6-9 '64. (MIRA 18:3)



APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R002065420018-3"

ARISTOV, Yevgeniy Mikhaylovich; ZORIN, D.I., kand. tekhn.nauk, retsenzent; KLYUKIN, I.I., retsenzent; MYASNIKOV, L.L., prof., nauchn. red.; LESKOVA, L.R., red.; ERASTOVA, N.V., tekhn. red.

[Physical quantities and units for their measurement] Fizicheskie velichiny i edinitsy ikh izmereniia. Leningrad, Sudpromgiz, 1963. 94 p. (MIRA 17:1)

BEZIKOVICH, A.Ya.; ZORIN, D.I.

Multilimit thermoelectric device for measuring current, voltage and power. Izm.tekh. no.2:29-32 F '63. (MIRA 16:2)
(Electric instruments)

ZORIN, D.I.; AKNAYEV, R.F.

Selective equilibrium indicator for a wide frequency band.
Izm.tekh. no.3:38-40 Mr '63. (MIRA 16:4)
(Electronic instruments)

ZORIN, D.I., dots., kand. tekhn. nauk; MITKEVICH, A.V., dots., kand. tekhn. nauk; SHMAKOV, E.M., ass.; SHRAMKOV, Ye.G., prof., doktor tekhn. nauk; ASHKENAZI, E.L., red.; AKSEL'ROD, I.Sh., tekhn. red.

[International electrotechnical vocabulary. Group 20: Scientific and industrial measuring instruments]Mezhdunarodnyi elektrotekhnicheskii slovar'; gruppa 20: Laboratornye i tekhnicheskie izmeritel'nye pribory. Izd.2. Moskva, Glav.red.inostr. nauchno-tekhn. slovarei Fizmatgiza, 1962. 225 p. (MIRA 16:1)

1. International Electrotechnical Commission.
(English language--Dictionaries--Polyglot)
(Electric engineering--Dictionaries)

SHRAMKOV, Ye.G.; NOVITSKIY, P.V.; FETISOV, M.M.; ZORIN, D.I.

Concerning the structure and some fundamental characteristics of present-day electric measuring devices. Elektrichestvo no.8:20-25 Ag '62. (MIRA 15:7)

1. Leningradskiy politekhnicheskiy institut imeni Kalinina.
(Electric measurements)

S/194/61/000/008/007/092
D201/D304

AUTHORS: Bezikovich, A.Ya., Zorin, D.I. and Kayander, M.S.

TITLE: Frequency errors of wattmeters

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 8, 1961, 10, abstract 8 A65 (V sb. Vopr. obshch. elektropriborostr., Kiyev, AN USSR, 1960, 53-61)

TEXT: A method and equipment has been designed at the VNIIM im. D.I. Mendeleyev for calibrating ammeters, volt and wattmeters at the frequency range of up to 20,000 c/s. The designed equipment is based on the thermo-electrical comparison method. The calibration accuracy of a.c. at frequencies up to 20,000 c/s is about 0.1 to 0.2%. The instruments produced for mains frequencies have been tested over a wide range of frequencies and for some types additional frequency correction have been determined. Formulae are given of frequency error terms resulting from inductance, mutual inductance and eddy currents. Calibrating frequency curves are

Card 1/2

Frequency errors of wattmeters

S/194/61/000/008/007/092
D201/D304

given for several types of instruments. Some types of wattmeters, designed for 50 c/s operation, may be used at up to 500 c/s provided that additional errors do not exceed the value expressing the class of accuracy of the instrument. Recommendations are given on the means of decreasing the frequency errors of small power factor wattmeters. [Abstracter's note: Complete translation]

Card 2/2

ROZHDESTVENSKAYA, T.B.; ZORIN, D.I.; BRODSKIY, A.M.

New design of a high-resistance six-decade potentiometer. Izm. tekh. no.6:31-36 Je '61. (MIRA 14:5)
(Potentiometer)

88703

9,6200 (and 1160, 1161)

S/058/60/000/010/012/014
A001/A001

Translation from: Referativnyy zhurnal, Fizika, 1960, No. 10, p. 342, # 27620

AUTHORS: Zorin, D.I., Brodskiy, A.M.

TITLE: A Bridge for Measuring Small Capacitances at Radio Frequency

PERIODICAL: Tr. Vses. n.-i. in-ta metrol., 1959, No. 38 (98), pp. 40-44

HT

TEXT: The authors present the theoretical calculations, design description, schematic diagram and photographs of a bridge for measuring small capacitances of the MME-1 type. The range of measurements runs from 0.002 to 1,000 picofarad at the loss angle ($tg\,\delta_x$) not exceeding 0.05 radian and a frequency of 1 Mc; for $tg\,\delta_x$ ranging from 0.001 to 0.05 radian, capacitances from 1 to 1,000 picofarad. The relative error of the bridge in measuring capacitance C does not exceed $\pm (0.2 + 2a/C + bC)\%$, where a is the factor of the ratio of bridge arms (0.1; 1; 10), b = 0.001 at a = 10 and is equal to zero for the other two a-values. The error in measuring $tg\,\delta_x$ at the 1-Mc frequency does not exceed $\pm (2+0.1/tg\delta_x)\%$ at $C \geqslant 10$ a picofarad. Measures taken for reducing the effect of parasitic losses are described.

B.Z. Kats

Translator's note: This is the full translation of the original Russian abstract.

Card 1/1

ZORIN, D.M.

USSR/Nuclear Physics - Instruments and Installations C-2
Methods of Measurement and Investigation.

Abs Jour : Referat Zhur - Fizika, No 1, 1958, 235

Author : Zorin, D.M., Milovanov, O.S., Shal'nov, A.V.
Inst : -
Title : Linearly-Cyclical Accelerator

Orig Pub : Atomn. energiya, 1957, 2, No 6, 552-553

Abstract : In 1954, O.A. Waldner proposed a linearly-cyclical accelerator (elutron) operating, like the microtron, on the principle of multiple resonance. The elutron consists of two linear accelerators, a system of rotating magnetic mirrors, and injecting limear accelerator, and a deflector that guides the injected electrons to the orbit. The magnetic system consists of four magnetic mirrors, each of which turns the beam by 90°. A uniform static magnetic field is perpendicular to the plane of the orbit, and the trajectories of the particles are directed towards the edge of the

Card 1/3

USSR/Nuclear Physics - Instruments and Installations. C-2
Methods of Measurement and Investigation.

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 235

the focusing properties of the scattering fields of the magnetic mirrors and four quadrupole magnetic lenses, set at the input and output of linear accelerators.

Card 3/3

D. M. ZORIN

21 (0), 24 (0)

AUTHOR: Tyagunov, G. A.

SOV/89-7-2-18/24

TITLE: Scientific Conference of the MIFI (Nauchnaya konferentsiya MIFI)

PERIODICAL: Atomnaya energiya, 1959, Vol 7, Nr 2, pp 176-177 (USSR)

ABSTRACT: The yearly scientific meeting was held from 17 April to 15 May 1959 in the Moskovskiy inzhenerno-fizicheskiy institut (Moscow Physical Engineering Institute). More than 600 participants from 100 different institutes attended the 2 plenary and 18 sectional conferences. A total of 148 lectures were held. The following lectures are specially mentioned: M. K. Romanovskiy on the thermo-nuclear examinations, N. G. Basov on the physical foundations of molecular generators and amplifiers, A. I. Leypunskiy on the construction of a fast reactor, I. Ya. Pomeranchuk on the theory of the peripheral collision of mesons and nucleons, A. B. Migdal on superfluidity and momentum of inertia of the nuclei, A. S. Kompaneyets on the strong electromagnetic gravity wave, V. I. Gol'danskiy on levels which are excited within the nucleus shell and methods of comprehending them, I. L. Rozental' and L. A. Prokhorova on the analysis of the possible experiments for the determination of the measurements of the μ-mesons, V. I. [illegible] on the spectrum of liquid and crystalline hydrogen under pressure (8000-10000 atm) and an instrument for measuring the absorption curves, [illegible] Lyapidevskiy and O. V. Simardina on new application possibilities of the diffusion chamber, A. V. [illegible] on calculation methods for linear electron accelerators with migratory waves, P. A. Ryazin, A. D. Fingarkin and A. [illegible] Sabeyev on new theories of the electron capture under betatron conditions of the acceleration, Yu. G. Pratnov on optimum wave length for a generator, S. P. Lomnev and G. A. Tyagunov on magnetic focusing in a linear electron accelerator, O. A. Val'dner, P. [illegible], [illegible] Zorin, [illegible] on the 3 new linear accelerators of the MIFI, and V. V. Kuznetskiy, O. A. Val'dner, V. V. [illegible] and V. N. Chesnokov on examination of the electron movement in the system of the elatron with consideration of the scattering fields, G. A. Krasov on impulse method for measuring the heat conduction capacity of liquids and the theory of this method, [illegible] Khabakhpasheva, [illegible] Il'in and [illegible] on heat transmission to the eutectic Na-K which flows in a circular space, [illegible] Petrovichev on heat transmission to circulating mercury, [illegible] Kozin on special conditions when working with a flat [illegible] in the impulse technique, G. S. Pol[illegible] on calculation methods and construction of an impulse transformer for instruments with semi-conductor elements, [illegible] on a possibility [illegible] judge the characteristics [illegible] recording of impulses, [illegible] on the element system for a universal digital computer, [illegible] on multiple control of the parameters of technologic processes, [illegible] on analysis of several systems with which physical energy apparatus can be automatically started, [illegible] on a method to examine the quality of a reactor control when the reactivity changes stepwise or linearly, G. A. Leont'yev and [illegible] on examination of the iodine method of refining niobium and characteristics of the metal obtained, P. L. Gruzin and O. G. [illegible] on examination of the micro-distribution of carbon, tungsten, iron and other elements in zirconium and its alloys by use of auto-radiography, G. B. Fedorov on determination of the sublimation heat of zirconium and nickel by using radioactive indicators and G. B. Fedorov and [illegible] on determination of the diffusion coefficients of chromium, nickel, iron and chromium nickel steels. The literature for all these lectures will be published by the MIFI in a symposium.

Card 1/3

Card 2/3

Card 3/3

AUTHOR ZORIN, D.M., MILOVANOV, O.S., SHAL'NOV, A.V. 89-6-10/24
TITLE A linearly-cyclic accelerator.
(Lineyno-tsiklicheskiy uskoritel'. - Russian)
PERIODICAL Atomnaya Energiya 1957, Vol 2, Nr 6, pp 552-555 (U.S.S.R.)

ABSTRACT The scheme for which patent rights were applied for by O.A. VALDNER in 1954 under 0608 permits the multiple use of a linear accelerator. Such an accelerator was described as being linearly-cyclic ("elutron"). It operates somewhat like a microtron according to the principle of multiple resonance but it is distinguished from the microtron by the construction of the magnetic system causing rotation. In the case of the elutron discussed here it is possible to use strong magnetic fields and to diminish the weight of the rotation system.
The elutron consists of two linear accelerators and of a system of magnetic mirrors. In addition there is an injector, which directs the relativistic electrons to their orbit. The scheme of the elutron is shown in form of a drawing. The magnetic system consists of 4 magnetic mirrors each of which deflects the bundle by 90°. The homogeneous static magnetic

CARD 1/3

A linearly-cyclic accelerator. 62-6-10/24

field is vertical to the plane of the orbit. If the stray fields are neglected the relativistic particles in the mirror pass through a quadrant with the radius R = E/eH. Here e denotes the charge of the electron, H - the magnetic field strength, E - the total energy of the electron. The particles with different energies describe quadrants with different radii in the first mirror and emerge from the mirror as a broad bundle. The second magnetic mirror is inclined by 45° towards the axis of this bundle, deflects the bundles by 45°, and collects the particles of different energies into a narrow bundle. By using a second similar system of magnetic mirrors it is possible to cause particles of different energies to move along closed orbits on the axes of the linear accelerators. The equation for the phase oscillations is similar to the corresponding equation for the microtron. In the here discussed magnetic system a steady motion of particles can be attained by using the focussing properties of the strayfields of the maghetic mirrors and four magnetic quadrupole lenses.
(With 2 Illustrations).

CARD 2/3

A linearly-cyclic accelerator. 89-6-10/24

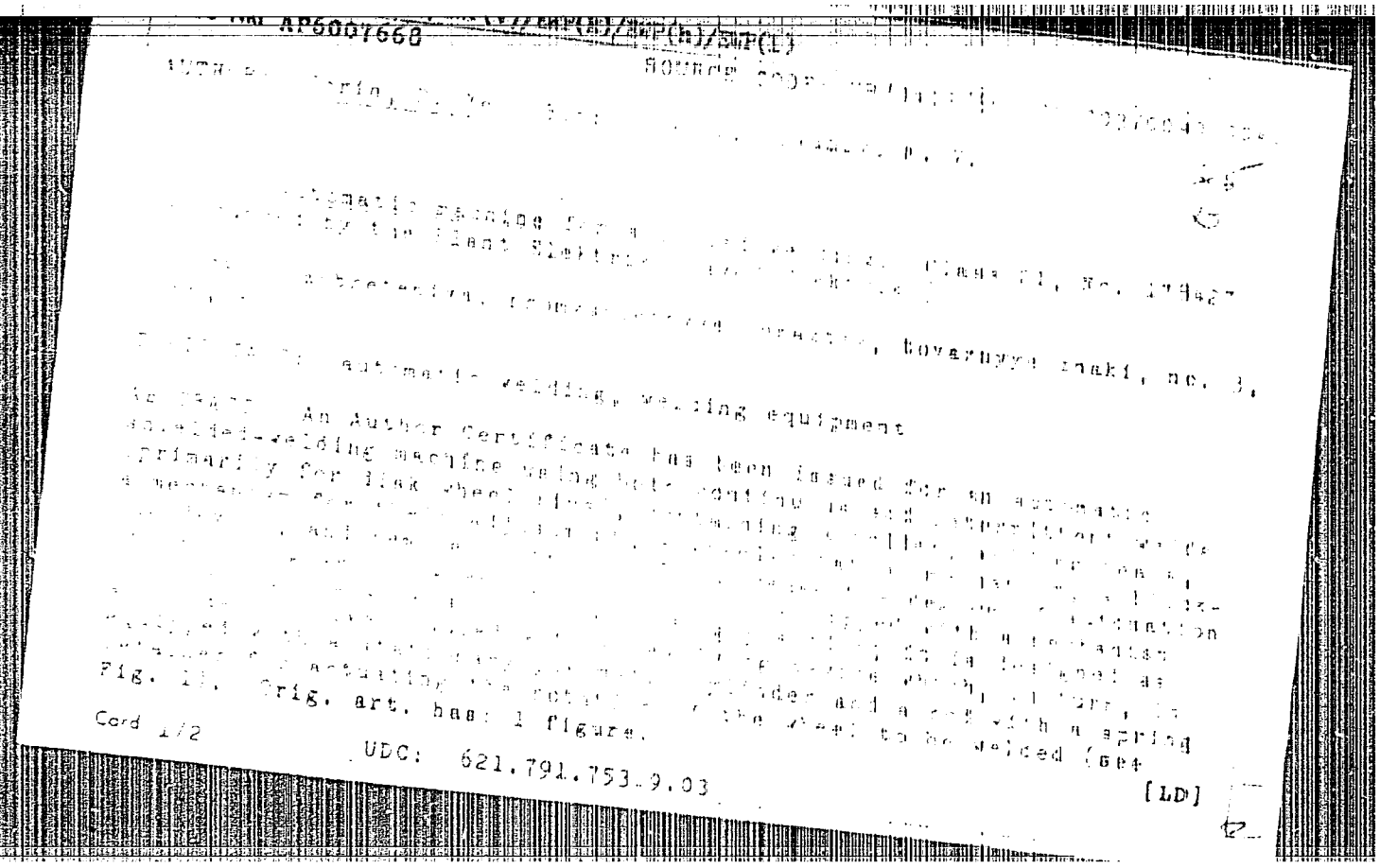
ASSOCIATION: not given.
PRESENTED BY: -
SUBMITTED: 9.11. 1956.
AVAILABLE: Library of Congress.

CARD 3/3

АДЛГ -300 (ADLG-300) automatic welder ...

following technical data: Voltage (at 50 cps) - 380 v; power input - 50 kW; welding current at 25% duty cycle - 300 amp; welding current regulation range - 35 - 300 amp; regulation range of the welding rate of each head - 25 - 60 m/h; air pressure - 4 - 6 kg/cm^2; thickness and width of strip being welded - 0.5 - 2.5 and 700 - 1,520 mm; argon consumption - 600 - 1,000 l/h; cooling water consumption - 500 - 600 l/h; table tractive force - 2 tons; strip-end clamping stress - 10 tons; overall dimensions (length x width x height): of automatic welder - 2,600 x 2,800 x 1,700 mm; of control cabinet - 700 x 670 x 1,810 mm; weight: of welder 7,000 kg; of control cabinet - 200 kg. Preliminary calculations have revealed that, with a welding-line capacity of 30,000 tons/year, the new automatic welder will yield savings of more than 50,000 rubles annually. There is 1 figure.

Card 2/2



automatic welding, welding equipment

An Author Certificate has been issued for an automatic
Primarily for link chain

Fig. 1. Orig. art. has: 1 figure.

Card 1/2 UDC: 621.791.753.9.03 [LD]

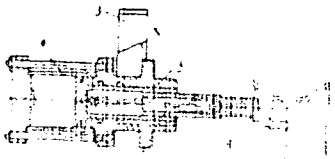


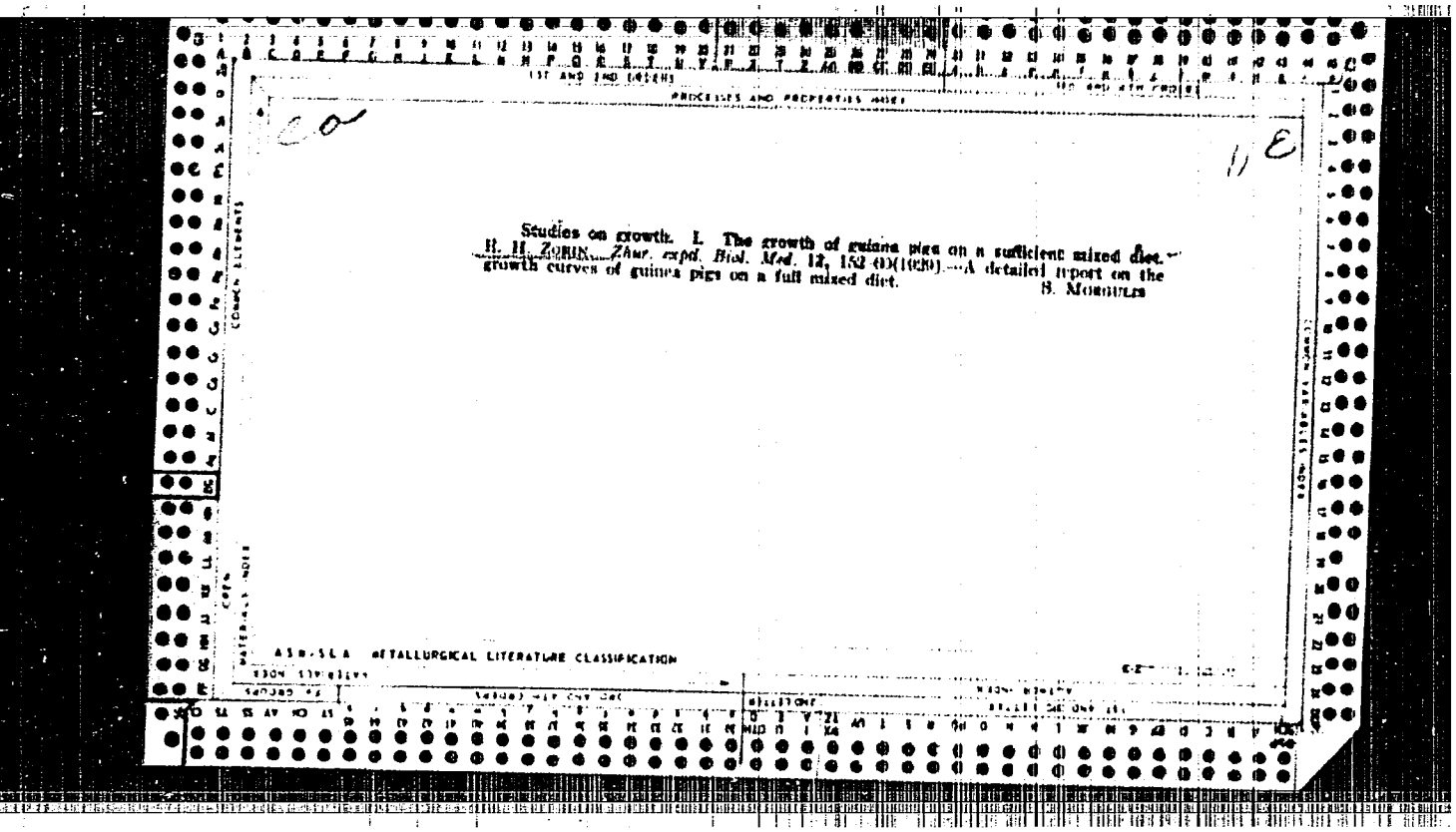
Fig. 1. Automatic machine for shielded welding.

1 - holder; 2 - pneumatic drive; 3 - revolving device; 4 - pneumatic cylinder; 5 - rod; 6 - retainer

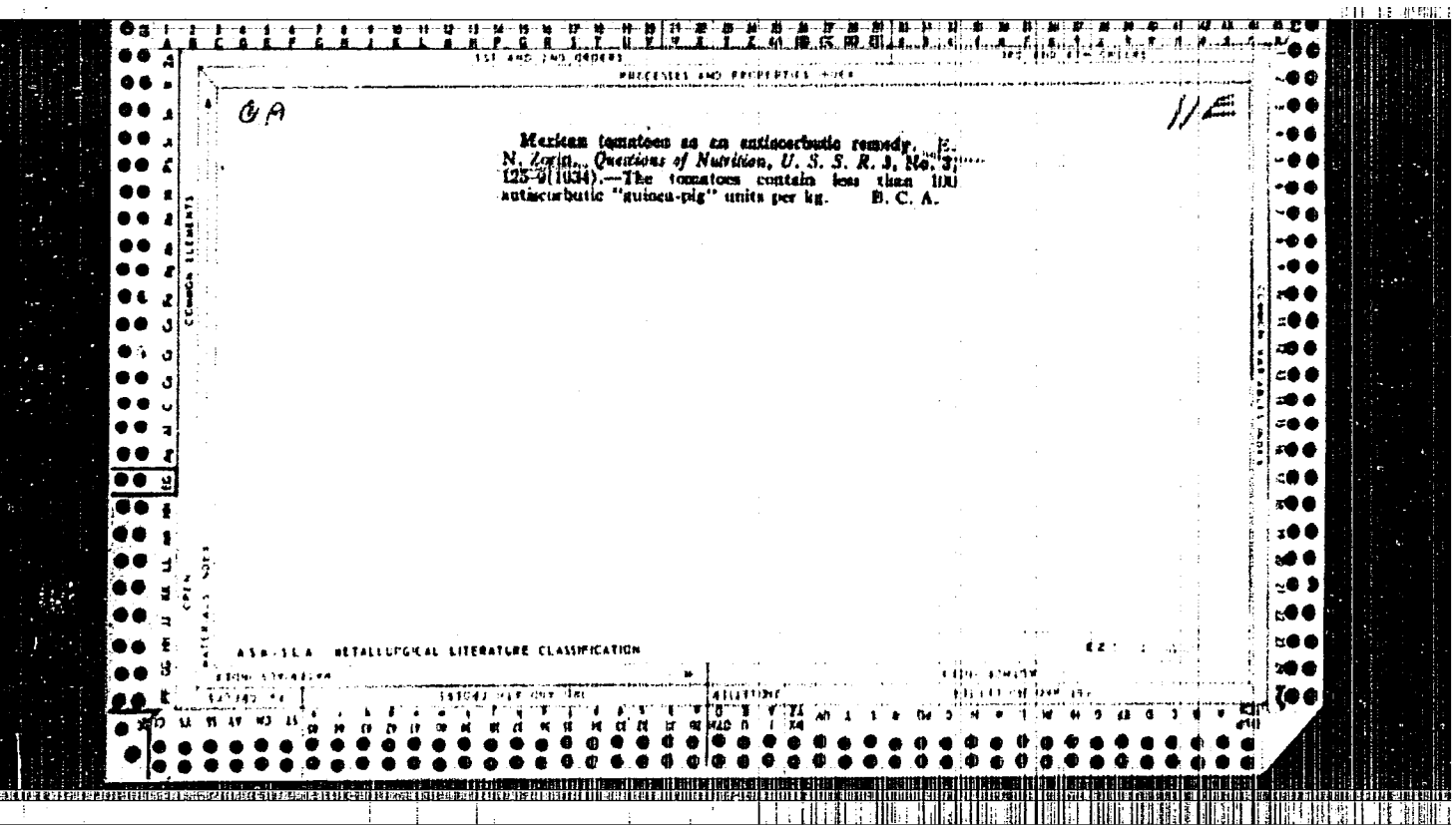
ZORIN, D.Ye.; SHAPIRO, O.Ya.

The ADLG-300 automatic machine for welding wide bands. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch. i tekh.inform. no.4:23-25 '62. (MIRA 15:7)

(Electric welding—Equipment and supplies)



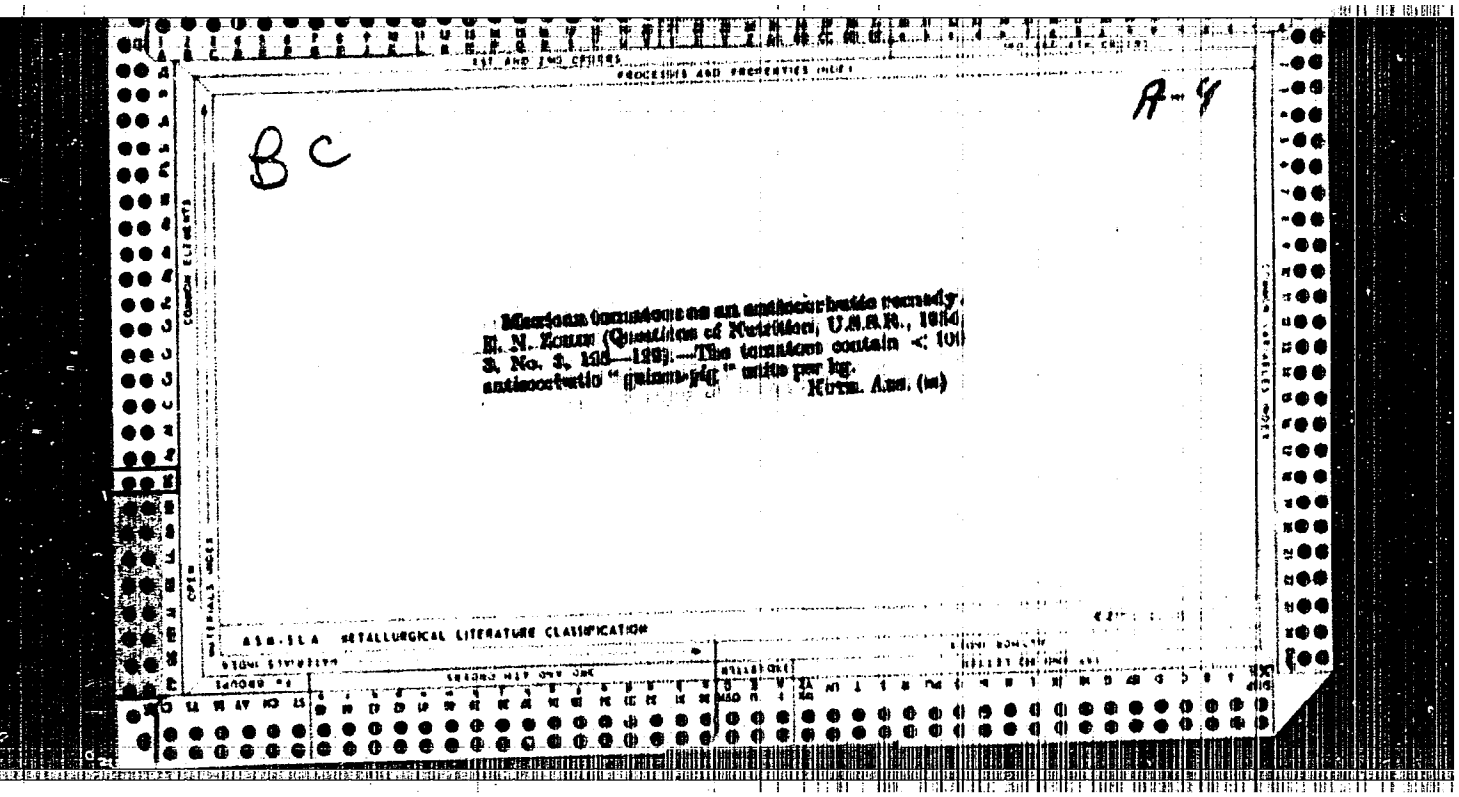
Studies on growth. I. The growth of guinea pigs on a sufficient mixed diet.—
H. H. ZORIN. *Zhur. exptl. Biol. Med.* 12, 152-60(1929).—A detailed report on the growth curves of guinea pigs on a full mixed diet. B. Mouriès



QA

Mexican tomatoes as an antiscorbutic remedy. [E.
N. Lavrin.] *Questions of Nutrition, U. S. S. R.* 3, No. 3,
125–9(1934).—The tomatoes contain less than 100
antiscorbutic "guinea-pig" units per kg. B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Mexican tomatoes as an antiscorbutic remedy.
E. N. Zenin (Questions of Nutrition, U.S.S.R., 1940
3, No. 3, 118—122).—The tomatoes contain < 10
antiscorbutic "guinea-pig" units per kg.
Nutr. Abs. (m)

ZORIN, F., kand.sel'skokhozyaystvennykh nauk

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ZORIN, F.

ZORIN, F.

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