MEN'SHAKOVA, V., inzhener

One shift system for coal mining in an Ural mine. Mast.ugl.4 no.7:10-12 Jl'55. (MLRA 8:10)
(Ural Mountain region--Coal mines and mining)

MEN'SHAKOVA, V., inzhener.

A mine section coal bin. Mast.ugl.4 no.11:24 N '55. (MLRA 9:2)
(Coal mines and mining)

MEN'SHAKOVA, V., inzhener.

Mechanizing deliveries of long lumber tl the mine. Mast.ugl. 5 no.3:21-22 Mr '56. (MLRA 9:7)
(Mine timbering)

MEN'SHCHIKOV, Boris Aleksandrovich; SHIRINKIN, Igor' Konstantinovich; FROLOVA, Ye.I., red.izd-va; SHKLYAR, S.Ya., tekhn.red.; GALANOVA, V.V., tekhn.red.

[Determining the capacity of the main drive of dredges] Metodika opredeleniia moshchnosti glavnogo privoda drag. Moskva, Gos. nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 42 p. (MIRA 14:2)

(Dredging machinery)

MEN'SHCHIKOV, F.S.

Crystallization of ternary systems with liquid phases separated into layers. Zhur.ob.khim. 23 no.6:926-935 Je '53. (MLRA 6:6)

1. Sibirskiy metallurgicheskiy institut. Kafedra obshchey khimii.
(Systems) (Crystallization)

MEH'SHCHIKOV, F.S.; ROZMANOVA, Z.Ye.

Luminescence method of determining the degree of oxidation of coals. Zav.lab.21 no.12:1471-1474 '55. (MLRA 9:4)

1.Sibirskiy metallurgicheskiy institut imeni Serge Ordzhonikidze.
(Oxidation) (Coal)

MEN'SHCHIKOV, F.S.; NAZAROV, P.G.

Intensification of the process for removing water from very fine coal by combined reagents. Izv. Sib. otd. AN SSSR no. 10:17-23 '60. (MIRA 13:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktor-skiy institut dobychi uglya gidravlicheskim sposobom.
(Coal--Drying) (Surface-active agents)

MEN'SHCHIKOV, F.S., kand.khim.nauk

Role of mixed reagents in the dewatering of iron concentrates.
Gor. zhur. no.12:47-49 D '60. (MIRA 13:12)

1. Sibirskiy metallurgicheskiy institut, Stalinsk, Kemerovskoy obl.
(Ore dressing--Equipment and supplies)

MENSHCHIKOV, G. A.

"Folklore of Asian eskomos as a source of historial and ethnographical studies."

report presented at the 8th Intl Cong, Anthropological & Ethnological Sciences, Moscow, 3-10 Aug 64.

MENSHCHIKOV, I. I.

15 15

Ebonite aging with ultraviolet light and its analysis by luminescence. I. I. Menshchikov. *Trudy Moskov. Vecher. Mashinostroit. Inst.* 1933, No. 1, 212-16; *Referat. Zhur., Khim.* 1935, Abstr. No. 66703.—Ebonite is subjected to ultraviolet irradiation of a Hg lamp without filter, to an elec. field 20% lower than the breakdown voltage, and to silent discharge for 6 hrs. The tensile strength of ebonite subjected to ultraviolet irradiation decreases from 590 kg./sq. cm. to 355 kg./sq. cm. and its compressive strength from 65 kg./sq. cm. to 38 kg./sq. cm. The elasticity is also impaired. All this makes the ultraviolet-irradiation method very effective and its adoption suitable. The surface and vol. resistivity, after the subjection to elec. field and the silent discharge, are lowered. Under ultraviolet light the ebonite emits yellowish brown light with characteristic hues in the case of synthetic rubbers. The intensity of the luminescence depends on the type of ebonite. N. V.

1-4E2c
1-4E4c
1-4E3D

MRUSHCHIKOV, I.I.

BRAVICHEV,V.A.; GAYDAR,V.I.; ZIMIN,M.V.; MRUSHCHIKOV,I.I.; BRITKIN,A.S. retsenzent; ROZENBERG,Yu.A., kandidat tekhnicheskikh nauk, redaktor; TIKHONOV,A.Ya., tekhnicheskiy redaktor

[Metal cutting machines] Metallorezhushchie stanki. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1955. 660 p.
(Metal cutting) (MLRA 9:3)

KORSAKOV, Mikhail Ivanovich; MENSHCHIKOV, I.I., kand. tekhn. nauk, retsenzent; SIMONS, D.Ya., inzh., red.; SALYANSKIY, A.A., red. izd-va; SMIRNOVA, G.V., tekhn. red.

[Safety regulations for repair and assembly work in the machinery industry] Tekhnika bezopasnosti pri remontnykh i montazhnykh rabotakh v mashinostroenii. Moskva, Mashgiz, 1962. 196 p. (MIRA 15:9)
(Machinery industry—Safety regulations)

MENSHCHIKOV, I.I.; KUZNETSOV, A.I., kand. tekhn. nauk, retsenzent; KULESHOV, A.P., inzh., red.

[Electrical safety measures in the machinery industry] Elektrobezopasnost' v mashinostroenii. Moskva, Izd-vo "Mashinostroenie," 1964. 186 p. (MIRA 17:7)

MEN'SHCHIKOV, I.S.

45

PHASE I BOOK EXPLOITATION SOV/5644

Vserossiyskaya konferentsiya professorov i prepodavateley pedagogicheskikh institutov

Primeneniye ul' traakustiki k issledovaniyu veshchestva. vyp. 10. (Utilization of Ultrasonics for the Investigation of Materials. no. 10) Moscow, Izd-vo MOPI, 1960. 321 p. 1000 copies printed.

Eds.: V. F. Nozdrev, Professor, and B. B. Kudryavtsev, Professor.

PURPOSE: This book is intended for physicists and engineers interested in ultrasonic engineering.

COVERAGE: The collection of articles reviews present-day research in the application of ultrasound in medicine, chemistry, physics, metallurgy, ceramics, petroleum and mining engineering, defectoscopy, and other fields. No personalities are mentioned. References accompany individual articles.

Card 1/10

L 40919-66 EWP(e)/EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/JG

ACC NR: AP6020738 SOURCE CODE: UR/0136/66/000/006/0065/0067

AUTHOR: Kolchin, O. P.; Chuveleva, N. P.; Sumarokova, N. V.; Filipenko, V. V.; Men'shchikov, V. A.; Kadyshevskiy, V. S.; Belimov, N. I.; Abramovich, E. B.

ORG: none

TITLE: Manufacture of powdered niobium and its alloys by hydrogenating compacted metals and alloys

SOURCE: Tsvetnyye metally, no. 6, 1966, 65-67

TOPIC TAGS: metal powder, powder metal production, niobium, powder metallurgy, hydrogenation, niobium alloy

ABSTRACT: The report presents a method for manufacturing high purity powders by hydrogenating niobium or its alloys at lower temperatures (360 to 400C) and lesser excess hydrogen pressures (up to 0.7 atm) than those commonly required. The process is even faster at the reduced temperature levels. Hydrogenation and milling techniques are given in detail for source materials derived by electron beam smelting or carbide heating processes. For the latter, direct yield of dehydrogenated powder was 91.4%, total yield 98.3%, unaccountable losses 1.1%. The impurity content in niobium powders obtained from different compacted metals is

Card 1/3 UDC: 669.293-492.2

given in Table 1.

Table 1. Impurity content (% by man) in niobium powders obtained from different compacted metals.

Initial material			Powder (—0.147 mm)		
N	O	C	N	O	C
Reduced Metal					
0.04	0.27	0.15	0.04	0.24	—
0.05	0.27	0.08	0.05	—	—
0.05	0.20	0.09	0.05	—	0.11
0.05	0.20	0.10	0.03	—	—
0.04	0.28	0.07	0.06	—	—
0.04	0.13	0.06	0.09	—	—
0.07	0.24	0.05	0.05	0.32	—
0.05	0.20	0.07	0.04	0.30	—
0.05	0.15	0.06	0.05	—	—
Ends of rods of a sintered Metal*					
0.05	—	0.12	0.08	0.16	0.15
0.04	0.45	0.20	0.02	0.46	0.26
0.05	0.25	0.12	0.05	—	0.11
0.04	0.27	0.08	0.05	0.30	0.11
—	—	—	0.05	0.35	0.06
0.05	—	—	0.06	0.40	0.20

*The sintered rods contain 0,01—0,03% C; 0,02% N; 0,02% O; <0,01% Ti и Si; 0,01—0,03% Fe; 0,15—0,25% Ta; ~ 99,9% Nb (+Ta).

L 40919-66
ACC NR: AP6020738

Orig. art. has: 2 figures and 1 table.

SUB CODE: 11,13/ SUBM DATE: 00/ ORIG REF: 001/ OTH REF: 002

Card 3/3 11b

L 02427-67 EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG

ACC NR: AP6031728 SOURCE CODE: UR/0136/66/000/009/0072/0074

AUTHOR: Kolchin, O. P.; Filipenko, V. V.; Nizharadze, K. S.; Abramovich, E. B.; Sumarokova, N. V.; Men'shchikov, V. A.

ORG: none

TITLE: Synthesis of niobium carbide with a low nitrogen content

SOURCE: Tsvetnyye metally, no. 9, 1966, 72-74

TOPIC TAGS: niobium carbide, high purity carbide, ~~low nitrogen niobium carbide~~, niobium carbide synthesis, NIOBIUM COMPOUND, CARBIDE, NITROGEN, OXYGEN, CHEMICAL SYNTHESIS

ABSTRACT: An investigation has been made of the various factors which contribute to the contamination with nitrogen and oxygen of niobium carbide produced by a continuous process in the Tamman furnace. The investigation results showed that the only significant source of contamination was the inflow of air into the reaction chamber when the furnace was opened every 30 min for charging and removing the final product. Modification of the charge chamber decreased the cross section of the charging shute from 1000 to 160 cm^2, cut in three the number of openings required to charge the chamber, and sharply reduced the amount of the air flowing in through a narrowed charge shute. A hydraulic lock was also installed for combustion gases, which made it possible to increase the pressure of gases in the furnace to 100—200 mm Hg and thus practically eliminate the inflow of air into the furnace.

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L 02427-67

ACC NR: AP6031728

The resulting improvement of the process substantially improved the quality of niobium carbide produced. The niobium carbide produced in the modernized furnace contained 89.32—89.63% Nb(+Ta), 0.03—0.14% Fe, 10.0—10.4% C, and only 0.028—0.059% N and 0.14—0.52% O, instead of the previous 0.3% N and 2—3% O. Tantalum carbide with a low content of nitrogen and oxygen was also produced in the modernized furnace, and it is believed that pure carbides of other refractory metals can be produced in it. Orig. art. has: 2 figures.

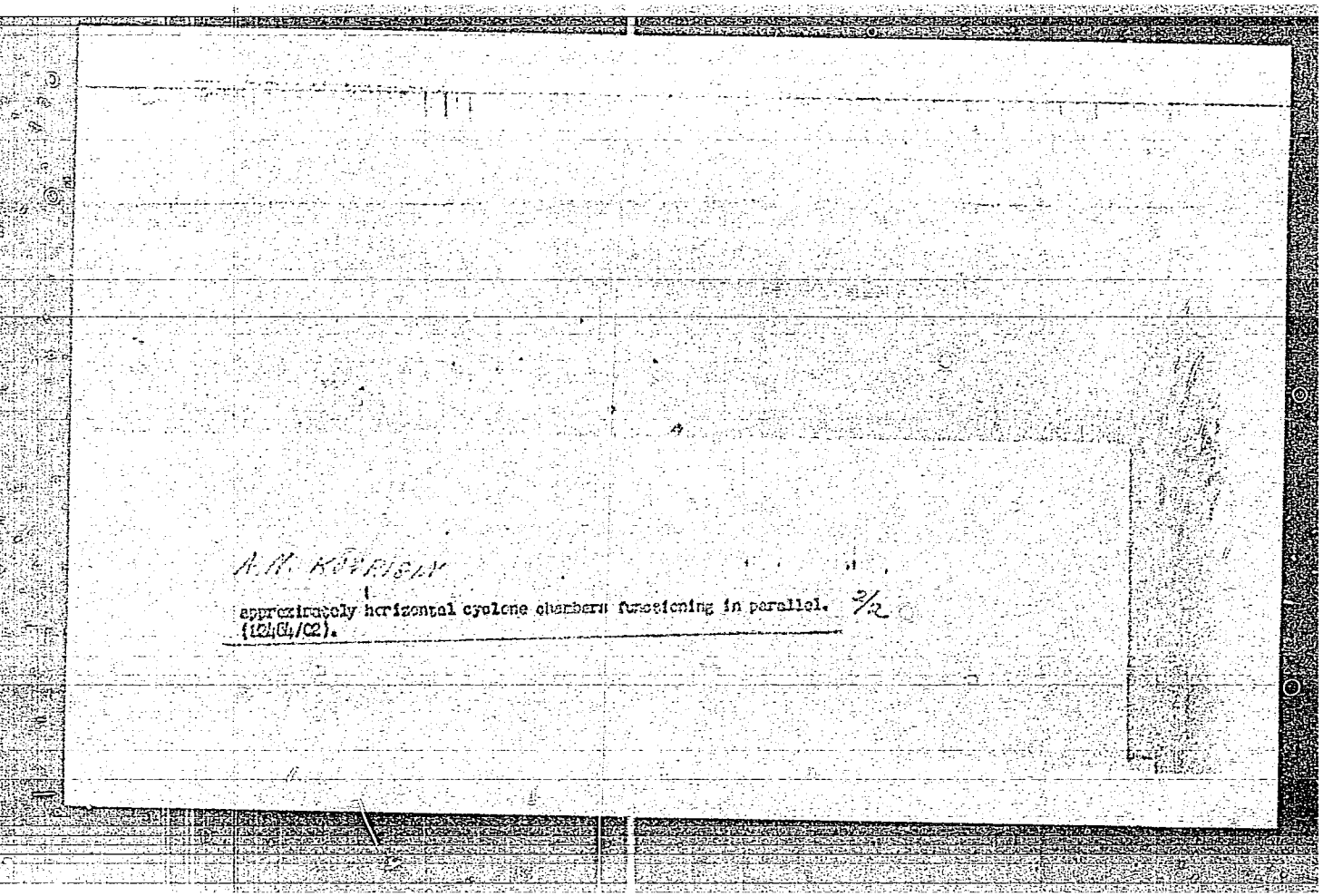
SUB CODE: 07 / SUBM DATE: none/ ORIG REF: 005/ OTH REF: 001

Card 2/2

MEN'SHCHIKOV, V.P.

2421. INITIAL TESTS AND INVESTIGATION OF TSKTI-LENENERGO CYCLONE FURNACE DEVISED BY A.N. KOVRIGIN. Bershtein, I.K., Kovrigin, A.N. and Men'shchikov, V.P. (Moscow: Mashgiz, 1954, "Furnace Installations (Topochnye Ustroistva)", Ed. A.A. Kanaev, TsKTI Book 26, 256pp., 34-75). A full account is given of experimental work which started in December 1950 in a Leningrad power station. Two cyclone chambers, connected in series by a central passage, were fitted approximately horizontally outside a side wall of the unscreened furnace of a Babcock and Wilcox boiler originally designed for oil or gas firing. The second chamber discharged into the original combustion chamber of the boiler. The two chambers and the connecting passage were formed of water tubes studded with steel pins, covered with chromite refractory and enclosed in a steel shell. The first and second chambers were 2.07 and 2.87 m long and 1.46 m in diameter. The first chamber had four tangential slots for primary air along its length at the top and either a central turbulent burner in the end or a tangential burner in the first primary air slot. Stable combustion was obtained with fine coal up to 5 mm fed with primary air to the central burner or with pulverized coal similarly fed to the tangential burner. The outlet from the first chamber was through a throat in the shape of an inwardly facing cone whose internal diameter was 0.987 and 0.787 m in different series of experiments. The chief trouble was melting of the refractory lining of the cyclone chambers owing to the water tubes being spaced too widely. This type of furnace is recommended for new plant and for suitable existing boilers. Drawings are shown of a 230 tons/h TP 230-3 boiler to be installed in 1954 in a Donbass power station, to burn coal preparation refuse in four

(OVER)



A.M. KOVRIGIN

approximately horizontal cyclone chambers functioning in parallel. 3/2
(124/C4/C2).

SOLOV'YEV, G.M.; MEN'SHCHIKOV, V.V.; USVATOVA, I.Ya.; MESHCHERYAKOV, A.V.; MANEVICH, A.Z., red.

[Adrenal hormones in surgery] Gormony nadpochechnikov v khirurgii. [By] G.M.Solov'ev i dr. Moskva, Meditsina, 1965. 261 p. (MIRA 18:5)

MEN'SHCHIKOVA, A.K., kand.med.nauk (Moskva)

Health education in the control of typhoid fever in Uzbekistan. Fel'd. i akush. 25 no.11:59-61 N '60. (MIRA 13:11)
(UZBEKISTAN--HEALTH EDUCATION)
(UZBEKISTAN--TYPHOID FEVER)

ZAMBRIBORSHCH, F.S.; MEN'SHCHIKOVA, L.A.; MITASOVA, Ye.V.

The paracaudal organ of the anchovy and its supposed function.
Zool.zhur. 39 no.7:1107-1109 Jl '60. (MIRA 13:7)

1. Kafedra zoologii pozvonochnykh Odesskogo gosudarstvennogo universiteta.
(Anchovies) (Fins)

MEN'SHCHIKOVA, M.A. (Moskva).

Training initiative as a character trait. Vop.psikhol. 2 no.5:78-86 S-O '56. (MLRA 10:1)
(Efficiency, Industrial) (Communist ethics)

MENSHCHIKOVA, N.I.

The binding of acids by dried plants. N. I. Men'shchikova. *Uchenye Zapiski Leningrad. Gosudarst. Univ. im. A. A. Zhdanova* No. 186, *Ser. Biol. Nauk* No. 39, 196-205 (1955).--A rapid binding of org. acids occurs when they are added to dried plant material. M. detd. the percentage of acid bound by powd. leaves of the sunflower, squash, tobacco, and rhubarb plants for oxalic, tartaric, malic, and citric acids. The binding of mineral acids by the powd. leaves was also studied for H_2SO_4 and HCl. Rhubarb did not bind any of the acids used. The binding of an enzyme made from powd. leaves and inactivated before the addn. of the acid was studied. CO_2 gas was isolated from the leaves 2 hrs. after the addn. of the different acids, and also from powd. leaves after inactivation of their enzyme and addn. of acid.

J. M. Widom

1

MENSHCHIKOVA, N.I.

Binding of acids in hihger plants. Uch.zap.Len.un. 186:196-204 '55.
(MLRA 9:8)

(Acids, Organic) (Plants--Physiology)

MEN'SHCHIKOVA, V.B., kandidat sel'skokhozyaystvennykh nauk.

Feeding sows with corn silage. Nauka i pered. op. v sel'khoz. no.10:46-48 O '56. (MLRA 9:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut kormleniya sel'skokhozyaystvennykh zhivotnykh.
(Corn (Maize)) (Swine--Feeding and feeding stuffs)
(Ensilage)

MEN'SHCHIKOVA, Zh. M. Cand Biol Sci -- "Role of interoceptio[illegible] in the mechanism of action of microcells (copper, manganese) on blood pressure, respiration, and sugar content in the blood of animals." Vitebsk, 1[illegible] (Min of Agriculture BSSR. Vitebsk Vet Inst). (KL, 1-61, 136)

RYZHOV, K.A., nauchnyy sotrudnik; MEN'SHENIN, A.I., inzh.

Loader for ear corn and the grain of various crops. Soob. i ref. VNIIZ no.4:27-29 '61. (MIRA 16:5)

1. Konstruktorskoye byuro Vsesoyuznogo nauchno-issledovatel'skogo instituta zerna i produktov yego pererabotki (for Men'shenin).
(Grain) (Loading and unloading)

MEN'SHENIN, A. YA.

Bee Culture - Equipment and Supplies

Expandable two-story hive. Pchelovodstvo 29 No. 8, 1952

Monthly List of Russian Accessions, Library of Congress, November 1952. UNCLASSIFIED.

ZHUKOV, D.G.; KEYS, N.V.; MEN'SHENIN, Ye.B., PEGOV, V.G.; MOLCHANOVA, A.A.; VOINOV, S.G., doktor tekhn. nauk, rukovoditel' raboty.

Treatment of electric steel with a liquid synthetic slag.
Met. i gornorud. prom. no.1:61-65 Ja-F '65. (MIRA 18:3)

82668

S/080/60/033/007/012/020
A003/A001

18.8300; 18.7100

AUTHORS: Kochergin, V. P., Druzhinina, Ye. P., Men'shenina, G. V., Asanova, E. P.

TITLE: The Corrosion of Iron in Molten Nitrates and Chlorides of Metals of Groups I and II in D. I. Mendeleyev's System

PERIODICAL: Zhurnal prikladnoy khimii, 1960, Vol. 33, No. 7, pp. 1580-1586

TEXT: The corrosion rate of iron was studied in the following melts: $NaNO_3$ - $MgCl_2$, $NaNO_3$ - $ZnCl_2$, $NaNO_3$ - $LiCl$, $NaNO_3$ - KCl, $Ca(NO_3)_2$ - NaCl, $Sr(NO_3)_2$ - NaCl, $Ba(NO_3)_2$ - NaCl, KNO_3 - NaCl. The degree of thermal decomposition of these nitrates in the presence of chlorides of various metals was also investigated. The results are important for selecting salt melts for fluxes, heat carriers and thermal treatment of metal articles. The experiments were carried out at a temperature of 500°C. The highest corrosion rate of iron was observed in the melt $Ca(NO_3)_2$ - NaCl. The oxidation decreases in the series of the following melts: $Sr(NO_3)_2$ - NaCl, $Ba(NO_3)_2$ - NaCl, KNO_3 -NaCl. The corrosion is accompanied by the reactions $2Fe + O_2 \rightarrow 2FeO$; $6FeO + O_2 \rightarrow 2Fe_3O_4$.

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A003/A001

The Corrosion of Iron in Molten Nitrates and Chlorides of Metals of Groups I and II in D. I. Mendeleyev's System

Molecular oxygen appears in the melts due to thermal decomposition of nitrates to nitrites. The degree of nitrate decomposition depends on the counter-polarizing capacity of the cations. In the cation series Ca^{+2}-Sr^{+2}-Ba^{+2}-K^{+1} the counter-polarizing capacity decreases due to an increase in the radius and a decrease of the charge, the thermal stability of alkali earth metal nitrates increases, and the amount of molecular oxygen liberated decreases. The hydrolysis and thermal dissociation of the nitrates to metal oxides increases in proportion to an increase in the temperature and in the counter-polarizing capacity of the cations in the series: $Ba(NO_3)_2$-NaCl, $Sr(NO_3)_2$-NaCl, $Ca(NO_3)_2$--NaCl. The corrosion rate increases if sodium nitrate is added to molten chlorides of magnesium, zinc, lithium and potassium.. Beyond a certain maximum of the nitrate content the corrosion rate decreases again. It is evident that the chlorine ions are depassivators in the oxidation of iron in molten nitrates. They destroy the oxide film on the iron and facilitate the diffusion of the oxidizing agent to the surface of the metal. The dehydration of the melts in a deep vacuum at 500°C for 2.5-3 hours leads to a considerable decrease of the corrosion rate in the melts: $NaNO_3$-$MgCl_2$, $NaNO_3$-$ZnCl_2$, $NaNO_3$-LiCl, $Sr(NO_3)_2$-NaCl.

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S/080/60/033/007/012/020
A003/A001

The Corrosion of Iron in Molten Nitrates and Chlorides of Metals of Groups I and II in D. I. Mendeleyev's System

The decrease is caused by the elimination of gaseous hydrolysis products and traces of water. The conclusion is drawn that in the thermal treatment of metal articles, it is necessary to avoid the introduction of chlorides of various metals into saltpeter baths and the introduction of nitrates and nitrites of alkali and alkali earth metals into chloride baths. There are 4 graphs, and 17 references: 15 Soviet and 2 English.

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A. M. Gor'kogo (Ural State University imeni A. M. Gor'kiy)

SUBMITTED: December 14, 1959

Card 3/3

L 01517-66 EWT(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c) MJW/JD

ACCESSION NR: AP5014375 UR/0383/65/000/001/0061/0065
669.187.6—8

54
36
B

AUTHOR: Zhukov, D. G.; Keys, N. V.; Men'shenin, Ye. B.; Pegov, V. G.; Molchanova, A. A. 44,55 44,55 44,55 44,55 44,55

TITLE: Treatment of electric steel with liquid synthetic slag 16,44,55

SOURCE: Metallurgicheskaya i gornorudnaya promyshlennost', no. 1, 1965, 61-65

TOPIC TAGS: electric steel, synthetic slag

ABSTRACT: The treatment of electric steel with liquid synthetic slag was adopted on a mass-production scale at the Chelyabinsk metallurgical plant 44,55 for the first time in the history of Soviet metallurgy in July, 1964. The chemical composition of the materials and the procedure employed in the preparation of the lime-alumina slag are described. ShKh15 steel was treated with the slag obtained. The slag treatment was found to reduce considerably the contamination of the steel with non-metallic impurities, to decrease the sulfur content, and to raise the output of the electric furnaces by 12 to 15%. The macrostructure of slag-treated ShKh15 steel shows virtually no differences from that of steel of standard batches. "The

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L 01517-66
ACCESSION NR: AP5014375

work was carried out in collaboration with TsNIIChM under the supervision of Doctor of Technical Sciences S. G. Voinova. In addition to the authors, engineers M. V. Keys, Ye. S. Golikov, I. A. Lubenets, V. G. Pegov, N. V. Ridenik, A. A. Molchanova, M. Ye. Anisimova and others participated in the study." Orig. art. has: 2 figures and 6 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 000 OTHER: 000

Card 2/2

LUBENETS, I.A.; ZHUKOV, D.G.; VOINOV, S.G.; SHALIMOV, A.G.; KOSOY, L.F.; KALINNIKOV, Ye.S.; CHERNYAKOV, V.A.; YAFTSEV, M.A.; GOLIKOV, Ye.S.; MYSINA, G.Ye.; Prinimali uchastiye: KEYS, N.V.; PEGOV, V.G.; MEN'SHENIN, Ye.B.; BARNOVALOV, M.A.; SHIPER, G.B.; SHATALOV, M.I.; MOLCHANOVA, A.A.; ANISIMOVA, M.Ye.

Refining steel with synthetic slag from large-capacity arc furnaces. Stal' 25 no.3:232-235 Mr '65. (MIRA 18:4)

VOROB'YEV, Vladimir Aleksandrovich; MEN'SHENINA, V.A., red.

[Calculation methods for the construction of woolen yarn and fabrics] Metod rascheta pri postroenii sherstianoi priazhi i tkani. Moskva, Izd-vo "Legkaia industriia," 1964. 162 p. (MIRA 17:7)

AGAPOVA, Nadezhda Platonovna, kand. tekhn. nauk; MOROZOVA, Nadezhda Dmitriyevna, kand.tekhn. nauk; IYTKINA, Sof'ya Grigor'yevna. Prinimala uchastiye MURALEVICH, M.V.; POTAPOVA, L.V., kand. tekhn. nauk; MONINA, P.V., kand. tekhn. nauk; DMITRIYEV, I.I., retsenzent; MEN'SHENINA, V.A., red.

[Equipment and technology of silk weaving manufacture] Oborudovanie i tekhnologiia shelkotkatskogo proizvodstva. Moskva, Legkaia industriia, 1964. 527 p. (MIRA 18:1)

ALEKSEYEV, Konstantin Grigor'yevich; LYUBIMOV, N.S., kand. tekhn. nauk, retsenzent; MEN'SHENINA, V.A., red.

[Working principles and maintenance of the warping machines for cotton manufacture] Ustroistvo i obsluzhivanie snoval'nykh mashin khlopchatobumazhnogo proizvodstva. Izd.2., perer. Moskva, Izd-vo "Legkaia industriia," 1964. 179 p. (MIRA 17:8)

POTYAGALOV, Afanasiy Fedorovich; KANUNNIKOV, I.V., retsenzent; AGADZHANOVA, I.A., red.; MEN'SHENINA, V.A., red.

[Warp sizing] Shlikhtovanie osnov. Izd.2., dop. i perer. Moskva, Legkaia industriia, 1965. 363 p. (MIRA 18:3)

SAVARENSKIY, Vsevolod Vladimirovich; MEN'SHENINA, V.A., red.

[Electrolytic polishing in the repair and modernization of the equipment of textile factories] Elektropolirovka pri remonte i modernizatsii oborudovaniia tekstil'nykh predpriiatii. Moskva, Legkaia industriia, 1964. 56 p. (MIRA 18:8)

SURNINA, Nina Fedorovna, kand. tekhn. nauk; NOVIKOV, Aleksandr Konstantinovich; SIDOROV, M.I., retsenzent; MEN'SHENINA, V.A., red.

[Equipment and technology for the manufacture of linen fabrics] Oborudovanie i tekhnologiia l'notkatskogo proizvodstva. Moskva, Legkaia industriia, 1965. 432 p. (MIRA 18:7)

MEN'SHIKH, B.V. (Filonovo)

Problems in construction in the solid geometry course. Mat.v shkole no.4:47-56 Jl-Ag '56. (MLRA 9:9)
(Geometrical drawing)

SELIVANOV, Ya.M.; MEN'SHIKH, L.K.; TIKHONENKO, T.I.; GORBUNOVA, A.S.; SOKOLOV, M.I.

Purification and fractionation of influenza virus by chromatography on aminoethylcellulose. Vop. virus. 9 no.5:550-555 S-O '64. (MIRA 18:6)

1. Institut virusologii imeni Ivanovskogo AMN SSSR, Moskva.

SOKOLOV, M.I.; PODCHERNYAYEVA, R.Ya.; MEN'SHIKH, L.K.

Transmission of genetic characters with the aid of ribonucleic acid isolated from influenza viruses. Vop. virus. 10 no.2:139-142 Mr-Ap '65. (MIRA 18:10)

1. Institut virusologii imeni D.I.Ivanovskogo AMN SSSR, Moskva.

PROSKURYAKOV, N.I.; MEN'SHIKH, L.K.

Extracellular glutathione reductase of Escherichia coli.
Mikrobiologiia 31 no.1:5-9 Ja-F '62. (MIRA 15:3)

1. Biologo-pochvennyy fakul'tet Moskovskogo gosudarstvennogo universiteta imeni Lomonosova.
(ESCHERICHIA COLI)
(GLUTATHIONE REDUCTASE)

MEN'SHIKH, L.K.; SELIVANOV, Ya.M.; TIKHONENKO, T.I.; SOKOLOV, M.I.; GORBUNOVA, A.S.; ZHDANOV, V.M.

Use of ion-exchange chromatography for preparative production of purified influenza virus. Vop. virus. 10 no.3:302-307 My-Je '65. (MIRA 18:7)

1. Institut virusologii imeni Ivanovskogo AMN SSSR, Moskva.

KLIMENKO, S.M.; SELIVANOV, Ya.M.; MEN'SHIKH, L.K.; GLAGOLEV, A.A.

Structure of the influenza virus. Vop. virus. 10 no.3:315-319 My-Je '65. (MIRA 18:7)

1. Institut virusologii imeni Ivanovskogo AMN SSSR, Moskva.

BORISOV, L.B.; RUMEL', N.B.; YERSHOV, F.I.; MEN'SHIKH, L.K.; ZHDANOV, V.M.; SOKOLOV, M.I.; BUKRINSKAYA, A.G.; BURDUCHEA, O.

Brief news. Vop. virus. 10 no. 6:727-733 N-D '65
(MIRA 19:1)

1. Leningradskiy sanitarno-gigiyenicheskiy meditsinskiy institut (for Borisov, Rumel'). Submitted December 29, 1964. 2. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva (for Yershov, Men'shikh, Zhdanov, Sokolov). Submitted February 2, 1965. 3. Institut virusologii imeni D.I. Ivanovskogo AMN SSSR, Moskva (for Bukrinskaya, Burduchea). Submitted February 8, 1965.

MEN'SHIKH, M.P.; FROLOV, P.F.; PAILOV, [illegible] red.; MIKHEYEV, N.I., red.

[Short handbook on physics] Kratkii spravochnik po fizike. Kuybyshev, Kuybyshevskoe knizhnoe izd-vo, [illegible] 1964. [illegible] p. (MIRA 18:1)

1. Kuybyshevskiy aviatsionnyy institut.

L 05106-67 EWT(l)/EWP(e)/EWI(m) WH

ACC NR: AP6013244 SOURCE CODE: UR/0413/66/000/008/0034/0034

34
B

AUTHOR: Men'shikh, O. F.

ORG: none

TITLE: A multistage synchronous detector with a quartz filter, based on the Hall effect. Class 21, No. 180646

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 8, 1966, 34

TOPIC TAGS: Hall effect, microwave detector, electronic rectifier

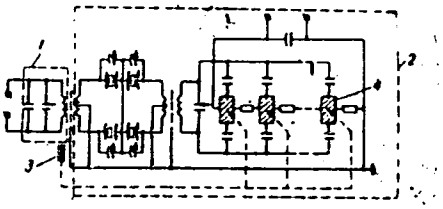
ABSTRACT: This Author Certificate presents a multistage synchronous detector with a quartz filter. The detector is based on the Hall effect and is designed to increase the transmission coefficient of the rectified signal sent to two oscillatory circuits tuned in resonance. One of these circuits is a tank circuit made with a toroidal ferrite core (see Fig. 1). Hall plates are placed in the gap of the toroidal core. The other oscillatory circuit is a narrow-band quartz filter tuned to the frequency of the carrier and loaded by the oscillatory circuit. A multichannel Hall sensing element is connected in series with the reactive elements of the oscillatory circuit. The multichannel Hall sensing elements with

Card 1/2 UDC: 621.376.239

L 05106-67

ACC NR: AP6013244

Fig. 1. 1 and 2 - oscillatory circuits; 3 - ferrite core; 4 - Hall plates



the plates connected in parallel are placed in the second circuit to reduce losses. Orig. art. has: 1 figure.

SUB CODE: 09/ SUBM DATE: 23Mar64

Card 2/2 vmb

ACC NR: AP7002644 SOURCE CODE: UR/0413/66/000/023/0188/0188

INVENTOR: Men'shikh, O. F.

ORG: None

TITLE: A spectrotron. Class 42, No. 178166

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 188

TOPIC TAGS: spectrotron, interferometer, electronic feedback, optic spectrum

ABSTRACT: This Author's Certificate introduces a spectrotron containing a two-terminal-pair network with a spiked amplitude-frequency response encompassed by a feedback loop. The device is designed for an increased number of stable equilibrium states with operation in the optical frequency region by using a Fabry-Perot interferometer as the two-terminal-pair network. This interferometer is exposed to a source of coherent monochromatic light waves with a line spectrum, and is optically coupled to a photoresistor which is connected in series to a fixed load resistor. The feedback circuit is formed by connecting the load resistor to the interferometer electrodes.

SUB CODE: 09, 20/ SUBM DATE: 21Sep64

Card 1/1

SOV/123-59-15-59677

Translation from: Referativnyy zhurnal. Mashinostroyeniye, 1959, Nr 15, p 111 (USSR)

AUTHOR: Men'shikh, V.P.

TITLE: Electrodynamic Braking of the Spindle of Cantilever Milling Machines

PERIODICAL: Vestn. tekhn. inform. Eksperim. n.-i. in-t metallorezh. stankov, 1958, Nr 1 - 2, pp 16 - 18

ABSTRACT: The main circuit and the characteristics of the electric equipment for the system of electrodynamic braking of the spindles of the 6N13PB high-speed cantilever milling machine are given. In this way sudden shocks in the units of the various mechanisms of the machine, which occur when the spindle is braked by counter-current, are eliminated. A time table is given, showing the time which elapses from pressing the button "stop" to the complete standstill of the spindle at various numbers of revolutions, in the case of self-braking and when electrodynamic braking is effected. Thus at 1,500 rpm the times are 19 and 4 seconds respectively.

B.I.M.

Card 1/1

MEN'SHIKH, Yu.Yu.

Modified nonpolarizing electrodes for applying an anode block inside an animal organism. Vop. fiziol. no.10:187-189 '54
(MLRA 10:5)

1. Kiyevskiy meditsinskiy institut, Kafedra normal'noy fiziologii.
(ELECTRIC ANESTHESIA)

MENSHIKH, Yu.Yu.

The "breaking in" of the neuromuscular apparatus of warm-blooded animals. Fiziol.zhur. [Ukr.] 1 no.2:103-107 Mr-Ap '55. (MLRA 9:9)

1. Kiivs'kiy medichniy institut imeni akademika O.O.Bogomol'tsya, Kafedra normal'noi fiziologii.
(MUSCLES)

MEN'SHIKOV, A., elektroliznik

Following Gaganova's initiative. Sov. profsoiuzy 7 no.17:27 S '59. (MIRA 12:11)

1.Profsoyuznyy organizator grupp (profgruporg) Ural'skogo alyuminiyevogo zavoda.
(Electrolysis--Technological innovations)

MEN'SHIKOV, A.; GOKHFEL'D, I.

Transmitting duties of technical councils to sections of the scientific technological society. NTO 2 no.3:45-46 Mr '60. (MIRA 13:6)

1. Predsedatel' soveta pervichnoy organizatsii Nauchno-tekhnicheskogo obshchestva zavoda "Bol'shevik" (for Men'shikov). 2. Uchenyy sekretar' soveta Nauchno-tekhnicheskogo obshchestva, Leningrad (for Gokhfel'd).
(Leningrad--Machinery industry--Technological innovations)

Men'shikov, A. D.

Effect of hydrogen on mechanical properties of forgings. N. N. Zlipotkin, R. D. Kl[illegible] and A. D. Men'shikov. *Tekhnologiya Transport. Mashinostroeniya* 1955, No. 2, 20-7; *Referat. Zhur., Met.* 1956, No. 1760.—Investigation was conducted on samples cut tangentially, axially, and radially from large forgings (700 mm. diam.) of Cr-Ni-Mo-V steel. σ_s and σ_t were uniform regardless of direction but ψ of tangentially cut samples rapidly decreased with distance away from the surface of forging and varied between wide limits. Less affected were δ and a_k. In longitudinal and radial samples the decrease in mech. properties is independent of location. Aging of metal and supplementary annealing at 640-60° for several hrs. for samples of small cross-section markedly increased the plastic properties without changing σ_s and σ_t on elongation. Supplementary annealing of large cross-section articles at 640° for 120 hrs. or 650-60° for 60 hrs. improved the plastic properties of [illegible] [illegible] as a result of [illegible]. V. N. [illegible]

MEN'SHIKOV, A. K.

Metal

Mechanical Properties of Large Forgings. A. M. Zhirenkin, A. D. Men'shikov, and P. D. Khimkii. (*Stal'*, 1955, (11), 1015–1023). [In Russian]. Investigations of the variation in mechanical properties over sections of heat-treated forgings, 700 mm in diameter, are described. It was found that, while variations in the strength of the metal were small, the plastic properties fall with increasing depth below the surface. This fall is especially evident with test-pieces cut tangentially with respect to the forging axis, and is appreciably less with radial and axial test-pieces. The fall is attributed to increasing hydrogen content and can be reduced by prolonged (60–120 h) tempering at a lower temperature than that required to produce the desired mechanical properties.

3

18.3200, 18.5200

77615
SOV/133-60-2-15/25

AUTHORS: Markaryants, A. A., Smirnov, Yu. D., Men'shikov, A. D., Yemel'yanov, B. F.

TITLE: Production of Rotor Shaft Forgings From Vacuum-Cast Ingots

PERIODICAL: Stal', 1960, Nr 2, pp 148-152 (USSR)

ABSTRACT: In light of attempts to minimize the hydrogen content in metal of large forgings for critical parts, the authors investigated TV-9 rotor forgings made from vacuum-cast ingots, and by way of comparison, from regularly produced ingots. Acid open-hearth 34KhN3MFA steel was used. The following persons participated in the study: S. Ye. Rabkin, A. P. Morozov, A. N. Solomin, B. A. Lavrent'yev, et al. (1) Vacuuming: a special installation consisted of 2 vacuum chambers, 17 and 36 m^3, and 3VN-6G-type pumps. Minimum pressure of 1 to 3 mm mercury

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Production of Rotor Shaft Forgings From Vacuum-Cast Ingots

SOV/133-[illegible]/25

column was maintained at the initial [illegible] (from 1 to 20 min) and residual pressure of [illegible] column toward the final period of degassing. An intermediate ladle was placed on the chamber lid. A 45-50 mm diam rubber cord secured air-tightness between chamber lid and ladle bottom. To prevent splashing by the hot metal jet from the intermediary ladle, a 280-300 mm diam, 300 mm long tube was attached to the lid aperture. Splashing was further reduced by increasing the ingot diam. Main attention was given to the riser lining to prevent lining pieces from entrapment in the ingot. The authors recommend accelerated teeming which also reduces ingot defects. (2) Characteristic of rotor forgings: Originally the workpieces were forged by two upsetting operations and two intermediate annealings followed by quenching from 900 and from 860° C and final annealing and temperings to remove hydrogen. The method of casting ingots under vacuum not only removes hydrogen but decreases the number

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Production of Rotor Shaft Forgings From Vacuum-Cast Ingots

77615
SOV/133-61-2-15/25

of oxide-silicate inclusions. Sequence of tests: Duplexing in 25 ton basic and 25 ton acid open-hearth furnaces. Four 13.4-ton test ingots were cast. Composition of melts, numbers 5,063 and 5,068 in %:

C	Mn	Si	P	S	Cr	Ni	Mo	V	Cu
0.35	0.44	0.29	0.015	0.018	1.42	3.21	0.36	0.13	0.15
0.38	0.42	0.28	0.014	0.017	1.43	3.24	0.38	0.13	0.14

Casting and degassing rates:

Melt numbers	5,063		5,068	
Ingots	1 and 2		1 and 2	
Time, min - sec				
casting until riser	6-40	5-00	7-30	7-30
total casting	11-10	8-55	11-30	11-10
degassing	8-00	-	7-00	7-30

Card 3/6

Production of Rotor Shaft Forgings From Vacuum- [illegible]
Cast Ingots

307, [illegible]

Pressure in vacuum chamber during casting, mm mercury column:

initial period	[illegible]	–	[illegible]	[illegible]
during metal rising to feeder	[illegible]	–	[illegible]	[illegible]
final period	[illegible]	–	[illegible]	[illegible]
Serial number of forgings	[illegible]	4,617	[illegible]	[illegible]

Forging 4,617 (see table above) produced without degassing showed the same properties as the other forgings produced by simplified process, i.e., by two upsetting operations followed by [illegible] from 8[illegible]0 and tempering with [illegible] of two intermediary annealings (having [illegible]) and quenching from [illegible] (giving [illegible]). Final annealing of all 4 forgings was done in [illegible] regular manner (see Fig. [illegible]):

Card 4/[illegible]

Production of Rotor Shaft [illegible]
Vacuum-Cast Ingots

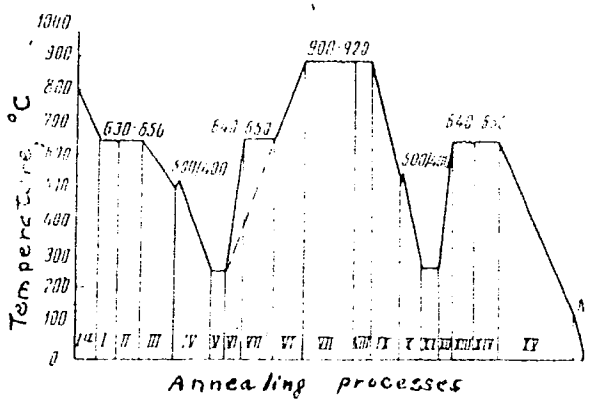

Fig. 5. Annealing diagram for [illegible]

Card 5/6

Production of Rotor Shaft [illegible] From Vacuum-Cast Ingots

[illegible]
SOV/[illegible]

After preliminary [illegible] the [illegible] heat-treated and [illegible] and ultrasonic tests showed no defects. All [illegible] forgings met the technical requirements. (3) [illegible] structural [illegible] and deformation of properties in steel along the [illegible] sections of [illegible] were investigated. The authors found that plastic properties of specimens taken from the inside of the [illegible] made from ingots treated according to the new method were considerably higher; rotors made from ingots degassed under vacuum were endowed with excellent plastic properties and impact strength. Neither microstructure, hardenability, nor mechanical properties were impaired. Along with recommending the above new [illegible] the authors [illegible] the elimination of special tempering [illegible] (for [illegible] 15 [illegible]) [illegible] plastic properties [illegible] open-hearth steel for large-scale [illegible] parts. There are [illegible]; 1 table; [illegible] reference.

Card 6/6

S/194/62/000/005/081/157
D222/D309

24,1800

AUTHORS: Lebedev, N.A., Men'shikov, A.V., and Soboleva, Z.A.

TITLE: Low-power ultrasound generators

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 5, 1962, abstract 5-5-34 yu (V sb. Primeneniye ul'trazvuka v tekhnol. mashinostr. no. 2, M., 1960, 15 - 24)

TEXT: The following generators are described and the circuit diagrams are given: A624.12 of 0.5 kW power and 15-30 kc/s frequency range for the supply of electrical energy and direct current for magnetostrictive transducers with a radiation surface of up to 20 cm^2; generator A624.08, intended for the supply of ultrasound soldering apparatus and tin-plating baths; generator A624.14 for the supply of electrical energy for quartz transducers with a radiation surface of up to 12 cm^2. [Abstractor's note: Complete translation].

Card 1/1

26249
S/194/61/000/001/016/038
D216/D304

24 1800 1137, 2607

AUTHORS: Lebedev, N.A., Men'shikov, A.V. and Soboleva, Z.A.

TITLE: Design of ultrasonic generators

PERIODICAL: Referativnyy zhurnal. Avtomatika i radioelektronika, no. 1, 1961, 13, abstract 1 E107 (V Sb. Primeneniye ul'traakust. k issled. veshchestva, no. 10, M., 1960, 61-68)

TEXT: Circuits and descriptions are given of electric generators with power outputs 0.5; 1.5; 5 and 8 kW used as supplies for ultrasonic magnetostriction generators. The frequency range of generators is 15 - 30 Kc/s. Experimental characteristics of generators are given together with a short description of an installation for ultrasonic processing of hard and brittle materials and of a bath for ultrasonic cleaning of electronic vacuum components.

Card 1/1

L 9493-66 EWT(d)/EWT(1) BC/WR
ACC NR: AP6000554 SOURCE CODE: UR/0109/65/010/012/2091/2098

AUTHOR: Bureyev, V. A.; Menshikov, A. V.

ORG: none

TITLE: Analysis of detection characteristics of variable-resolution systems

SOURCE: Radiotekhnika i elektronika, v. 10, no. 12, 1965, 2091-2098

TOPIC TAGS: radar, radar detection, radar rangefinding

ABSTRACT: As the conventional radar system using a practically realizable number of range-finding channels has a disadvantage of lower available power, a new variable-range-resolution system is suggested. The range span ΔR_0 is subdivided into l subspans $\Delta R_1 = \Delta R_0 / l$, and a signal having a resolution $\Delta r_1 = \Delta R_1 / n = \Delta R_0 / nl > \Delta r_3$ is used. The available n channels search all subspans, one by one. Should the target be detected in one of the subspans, the latter is again broken up into l sub-subspans $\Delta R_2 = \Delta R_1 / l$, which raises the resolution to $\Delta r_2 = \Delta R_2 / n = \Delta R_1 / nl = \Delta R_0 / (nl)^2$. At k-th stage, the resolution will be $\Delta r_k = \Delta R_0 / (nl)^k$. The procedure continues until an m-stage, where $m = \ln N / \ln nl$

Card 1/2 UDC: 621.396.967.23.01

L 9493-66
ACC NR: AP6000554

and corresponds to the resolution $\Delta r_m = \Delta r_0$. The optimal time distribution among the above stages is found, assuming that the fluctuations in different stages are independent. Further, for $n > 1$ and $l = 1$, formulas describing the probability of correct detection are developed for these cases: a) signal with random phase and random amplitude in each stage; b) rapidly fluctuating coherent signal; c) noncoherent pulse signal slowly fluctuating during the stage and rapidly fluctuating between the stages; d) rapidly fluctuating noncoherent signal. It is claimed that the new variable-resolution system ensures considerable gain, which increases with the number of resolution elements and close-to-optimal detection characteristics. Orig. art. has: 5 figures and 23 formulas. [03]

SUB CODE: 17 / SUBM DATE: 29Jun64 / ORIG REF: 002 / ATD PRESS: 4164

Card 2/2

ARKHAROV, V.I.; KONEV, V.N.; MEN'SHIKOV, A.Z.

Investigating reaction diffusion in the chromium - nitrogen system. Issl. po zharopr. splav. 3:408-414 '58. (MIRA 11:11)
(Chromium) (Nitrogen) (Diffusion)

S/520/59/000/022/010/021
E032/E514

24.7900 (1147,1158,1160)

AUTHORS: Men'shikov, A.Z. and Rudomanov, P.G.

TITLE: Paramagnetic Susceptibility of Some High Melting Point Chromium Base Compounds

PERIODICAL: Akademiya nauk SSSR. Ural'skiy filial, Sverdlovsk. Institut fiziki metallov. Trudy, no.22, 1959, pp.69-72

TEXT: The measurements were carried out at room temperature using a magnetic balance (Faraday method). The susceptibility was calculated from the formula

$$\chi_x = \frac{I_x \chi_s m_s}{m_x I_s} \qquad (1)$$

where χ_x is the susceptibility of the specimen under investigation, χ_s is the susceptibility of a standard specimen, m_s is the mass of the standard, I_s is the compensation current for the standard, m_x is the mass of the specimen under investigation, I_x is the compensation current for the specimen under investigation. Mohr's salt was used as the standard specimen. The susceptibility of this salt was assumed to be

$$\chi_s = \frac{9500}{T + 1} \cdot 10^{-6} \text{ CGSM}$$

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89654
S/520/59/000/022/010/021
E032/E514

Paramagnetic Susceptibility of Some High Melting Point Chromium Base Compounds

where T is the absolute temperature. The susceptibility was first measured as a function of the magnetic field and was found to decrease up to about 7000 Oe. This was due to ferromagnetic impurities. However, above 7000 Oe the curve levelled off and became horizontal so that above this value of the magnetic field the effect of the ferromagnetic impurity is completely excluded. The results obtained are summarised in the table. A comparison of the present results with the X-ray data reported by S.A.Nemnonov and A. Z. Men'shikov (Ref.7) showed that $CrCl_3$, Cr_2O_3, CrN, CrB_2 have an ionic-covalent type of bond, while Cr_3C_2, Cr_7C_3, CrB and Cr_2N have a covalent-metallic type of bond. Acknowledgments are expressed to S. A. Nemnonov for discussions and interest. There are 1 figure, 1 table and 10 references: 8 Soviet and 2 non-Soviet.

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89654

S/520/59/000/022/010/021
E032/E514

Paramagnetic Susceptibility of Some High Melting Point Chromium Base Compounds

Table

Substance	$\chi \cdot 10^6$ CGSM
$Cr_2(SO_4)_3$	28.0
$CrCl_3$	21.8
Cr_2O_3	19.2
CrN	18.0
Cr_2N	5.7
CrB_2	9.0
CrB	6.7
Cr_3C_2	6.3
Cr_7C_3	3.8
Cr_4C	4.3
$CrSi_2$	3.3
CrSi	11.2
Cr_3Si_2	5.8
Cr_3Si	4.8
Cr	3.4

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SOV/126-7-1-9/28

AUTHORS: Arkharov, V.I., Konev, V.N. and Men'shikov, A.Z.

TITLE: Investigation of Diffusion in the System Chromium-Nitrogen (Issledovaniye diffuzii v sisteme khrom-azot)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1959, Vol 7, Nr 1, pp 64-71 (USSR)

ABSTRACT: Nitrogen participates in the diffusion of oxygen or carbon in chromium at high temperatures. In the present work nitriding of chromium in an atmosphere of ammonia was studied. The kinetics of the process, phase composition, texture and microstructure of the nitride layers was studied during their formation at various temperatures between 600 and 1200°C. Electrolytic chromium served as the basic material in the study. Specimens were made by Arkharov's method (Ref.14) in the shape of hollow cylinders, 17 mm long, 7 mm diameter and 0.8 mm wall thickness. Deposition was carried out by two different methods, giving two different types of coating (Ref.15) - (1) bright chromium deposits, having a well-defined texture, and (2) matt (grey) deposits with a weakly defined texture. Nitriding was carried out

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Investigation of Diffusion in the System Chromium-Nitrogen

in a closed vertical quartz tube placed inside a tubular electric furnace. Before and after nitriding the specimens were weighed and the increase in weight determined. Debye crystallograms of the phase analysis were taken in K-Cr rays after asymmetrically blocking up the film. Textural X-ray pictures were taken and interpreted by a method described by Arkharov (Ref.16). For the metallographic study chromium deposits were prepared on steel cylinders on which flat portions had been filed along the generatrix. After nitriding, oblique sections of these flat portions were prepared for micro-examination. In Fig.1 the dependence of weight gains of specimens at various temperatures on duration of nitriding is shown. Fig.2 shows the temperature dependence of the angle of inclination of the kinetic curves for nitriding of chromium. In Fig.3 a micrographic cross-section of a chromium specimen after being nitrided right through is shown. Fig.4 shows the dependence of gain in weight of specimens of Cr_2N on the length of nitriding time. Fig.5 shows the temperature dependence of the angle of

 inclination of the kinetic curves for nitriding of Cr_2N.

Investigation of Diffusion in the System Chromium-Nitrogen

The results obtained in the above investigation have led to the following conclusions:
(1) The reaction diffusion in the system Cr-N begins with perceptible speed at 700°C and obeys the parabolic time law in the entire temperature range up to 1200°C.
(2) As the temperature is increased, the diffusion rate of the Cr-N increases initially slowly (i.e. below 1030°C), then rapidly (above 1030°C).
(3) Below 1030°C nitriding produces a two-phase layer in chromium - an internal, thicker one of Cr_2N and an outer, thinner one of CrN. Above 1030°C only the Cr_2N layer is formed. The CrN phase is unstable in an ammonia atmosphere above 1030°C. It does not re-form and the phase CrN, forming below 1030°C, is converted into the phase Cr_2N as this temperature is raised. The change in increase in the diffusion rate with temperature at above 1030°C seems to be associated with a change in the nature of the phase in the diffusion layers.
(4) As the Cr_2N layer forms in textured chromium the texture

 of the type

Investigation of Diffusion in the System Chromium-Nitrogen

$$(110)\ Cr_2N \parallel (111)\ Cr \parallel NP$$

or possibly

$$(120)\ Cr_2N \parallel (111)\ Cr \parallel NP$$

forms at all temperatures. In untextured chromium the Cr_2N possesses no texture.

(5) The outer layer, CrN (forming at below 1030°C) never possesses a texture, irrespective of whether the chromium and the Cr_2N layer have a texture or not.

(6) All structural characteristics of the layers point to the fact that during reaction diffusion in the Cr-N system nitrogen diffuses from without through the nitride layer into the metal, and no perceptible diffusion of the metal occurs in the reverse direction.

There are 5 figures, 2 tables and 18 references, of which 8 are Soviet, 4 German, 1 French, 1 Swedish and 4 English.

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SOV/126-7-1-9/28

Investigation of Diffusion in the System Chromium-Nitrogen

ASSOCIATION: Ural'skiy gosudarstvennyy universitet imeni A.M. Gor'kogo (Ural State University imeni A.M. Gor'kiy)

SUBMITTED: March 3, 1958

Card 5/5

SOV/48-23-5-9/31

24(7)

AUTHORS: Nemnonov, S. A., Men'shikov, A. Z.

TITLE: The K-Absorption Spectra of Chromium in Borides, Carbides, Nitrides and Some Other Compounds (K-spektry pogloshcheniya khroma v boridakh, karbidakh, nitridakh i nekotorykh drugikh soyedineniyakh)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 5, pp 578 - 581 (USSR)

ABSTRACT: Many papers published recently deal with the investigation of the character of interaction between the transition group metal atoms and the metalloid atoms of the first series (B,C,N,O). The present paper deals with the investigation of chromium compounds. Ten compounds are then mentioned, that were investigated by the authors; among them, the borides and carbides were prepared in the Institut metallokeramiki i spetssplavov AN USSR (Institute of Powder Metallurgy and Special Alloys of the AS UkrSSR). The chromium oxides were obtained by oxidation of electrolytic chromium at 1000°C. Details concerning the experimental conditions are then given. The determination of magnetizability was made by P. G. Rudomanov

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in the Laboratoriya magnitnogo strukturnogo analiza Instituta fiziki metallov AN SSSR (Laboratory of Magnetic Structural Analysis of the Institute of the Physics of Metals, AS USSR). Some similar works carried out by non-Russian scientists are described, and their results concerning the electron changes of state are mentioned. The results of the authors' own measurements of the K-absorption of chromium in the compounds and of metallic chromium are shown in a diagram (Fig 1). These results are then discussed, and the electron changes of state are concluded from them; the electron configuration of chromium both in compounds and in the pure state is given in a table. There are 1 figure, 1 table, and 13 references, 7 of which are Soviet.

MEN'SHIKOV, A.Z.

PHASE I BOOK EXPLOITATION SOV/4347

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov. Seminar po zharostoykim materialam

Trudy, vyp. no. 5 (Transactions of the Academy of Sciences, Ukrainian SSR, Institute of Metal Ceramics and Special Alloys, Seminar on Heat Resistant Materials, No. 5) Kiyev, Izd-vo AN Ukrainskoy SSR, 1960. 63 p. 2,000 copies printed.

Ed. of Publishing House: I.V. Kisina; Tech. Ed.: A.A. Matveychuk; Editorial Board: G.V. Samsonov (Resp. Ed.), I.N. Frantsevich, V.V. Grigor'yeva, A.Z. Men'shikov, and M.I. Korsunskiy.

PURPOSE: The book is intended for engineers, scientific workers and students specializing in refractory metals and their compounds, powder metallurgy, electronics, machine building and physical metallurgy in schools of higher technical education.

COVERAGE: This collection of papers, originally presented at the Seminar on Heat Resistant Materials in Kiyev on June 13–June 17, 1958,

discusses the physical properties and production technology of refractory metals and their metal-like compounds with boron, carbon, nitrogen, and silicon. The results of investigations of the absorption and emission spectra of niobium and chromium compounds, processes of joint diffusion of two elements in metals, and data on phenomenological studies of physical properties of metal-like phases are presented. Methods of processing rare metals and refractory compounds in making powders and various articles used in many fields of modern technology are analyzed in detail. Several articles discuss the particular problems of powder metallurgy of ordinary metals and alloys. The papers reflect work performed at the following institutions: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Metal Ceramics and Special Alloys, Academy of Sciences UkrSSR), Gosudarstvennyy institut prikladnoy khimii (State Institute of Applied Chemistry) Leningrad, Khar'kovskiy politekhnicheskiy institut (Khar'kov Polytechnic Institute), Institut fiziki metallov AN SSSR (Institute of the Physics of Metals, Academy of Sciences USSR), Sverdlovskiy gosudarstvennyy universitet (Sverdlovsk State University), VIAM, TsNIIChERMET, VNIIASh, Institut metallurgii AN USSR (Institute of Metallurgy, Academy of Sciences UkrSSR) VNIITS, NIIGRAF, MKhTI, Gor'kovskiy politekhnicheskiy institut (Gor'kiy Polytechnic Institute), and Moskovskiy elektrolampovyy zavod (Moscow Electric Bulb Plant). References accompany individual articles.

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AUTHORS: Namnonov, B.A., Menshikov, A.Z.

TITLE: K-spectra of chromium absorption in borides, carbides, nitrides and some other compounds

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 6, 1961, 32, abstract 6G281 ("Tr. Seminara po zharostoykim materialam" [In-t metallokeramiki i spets. splavov AN UkrSSR, no. 5,] Kiyev, 1960, 21 - 27)

TEXT: A roentgenospectral investigation was made of the nature of interaction between the metal atoms of the transition group (Cr) with metalloids B, C, N, and O (interstitial phases). CrB, CrB_2, Cr_3C_2, Cr_7C_3, CrN, Cr_2N, Cr_2O_3, and chemically pure $CrCl_3$ and $Cr_2(SO_4)_3$ salts were investigated. The roentgen K-edge of Cr absorption was studied. For all the phases investigated, magnetic susceptibility was measured. The following conclusions are drawn: 1) in metal-like compounds the nature of bond forces is complex; 2) the nature of interaction between Cr atoms and Cl, C, N, C, B changes continuously from an ionic-covalent to a covalent-metallic one; 3) it is not possible to relate differen-

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compounds within one phase diagram to one type of bond, since an essential part is played by the metalloid concentration; this is particularly characteristic of CrN, Cr_2N, CrB and Cr_2B; 4) the hypothesis on the metallic state of the metalloid atom can not be generalized to the whole class of the Haag interstitial phases.

I. Brokhin

[Abstracter's note: Complete translation]

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AUTHORS: Nemnonov, S.A. and Men'shikov, A.Z.

TITLE: X-Ray K Absorption Spectra of Chromium in Silicides

PERIODICAL: Fizika metallov i metallovedeniye, 1960, Vol 9, Nr 3, pp 385-389 (USSR)

ABSTRACT: The problem of the precise nature of the atomic bonding in silicides of certain transition metals is still a subject of controversy. According to Robins (Ref 1) and Nikitin (Ref 2) these substances are essentially intermetallic compounds and should be considered in the frame of the electron band theory. This view is supported by the following facts: (1) electrical conductivity of silicides is relatively high and often exceeds that of their constituents; (2) the temperature coefficient of electrical resistivity is positive and of the order of magnitude similar to that of the transition metals; (3) silicides are paramagnetic, their magnetic susceptibility varying only slightly with temperature. On the other hand, Pouling and Soldate (Ref 3), who had calculated the length of the bond and the number of bonding electrons in iron silicide (FeSi), reached the

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conclusion that compounds of this type fit very well the concepts of the resonance covalent bonding. The object of the investigation, described in the present paper, was to study the nature of the bond in silicides of transition metals by X-ray analysis. The experimental materials comprised chromium and several chromium silicides. Some of the properties of these compounds are given in Table 1 under the following headings: formula; type of the crystal lattice (cubic, tetragonal, cubic, hexagonal); symmetry group; lattice parameter, Å; electrical conductivity ohm^{-1} cm^{-1}; magnetic susceptibility, x 10^6, CGCM. The experimental technique used has been described elsewhere (Ref 9). The results, in the form of K absorption edges of pure chromium and chromium in various silicides, are reproduced graphically on p 386, where μ/ρ (a quantity proportional to the absorption coefficient) is plotted against the energy (eV), measured from an arbitrary zero value. In addition to obtaining the X-ray absorption spectra, the present authors, using data due to Pouling (Ref 10), calculated

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the lengths of the bonds and the number of bonding electrons in the investigated compounds. The results are given in Table 2 under the following headings: formula of the compound; N, R_n, n, and n_{ob}, for the Cr-Cr bond; N, R_n, n, and n_{ob}, for the Cr-Si bond; Σn_{ob}. Here N denotes the number of neighbouring atoms of one element, $R_n = R_1 - 0.3 \log n$, where R_n - length of the bond in which n electrons of a given atom participate, R_1 - unit bond length (taken to be equal to the covalent atomic radii of Cr and Si, ie 1.172 and 1.173 Å, respectively), Σn_{ob} denoting the total number of electrons of the chromium atom participating in the bond (ie the valency displayed by chromium). Analysis of these results, correlated with those obtained by other workers, led the present authors to a tentative conclusion that chromium silicides are characterized by a duplex metallic-covalent bond. The higher the silicon content, the less metallic in nature becomes the bond and in $CrSi_2$ the covalent bond becomes predominant. There are 1 figure, 2 tables and 11 references, 5 of

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which are Soviet, 4 English and 2 German.

ASSOCIATION: Institut fiziki metallov AN SSSR
(Institute of Physics of Metals, AS USSR)

SUBMITTED: June 9, 1959

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MEN'SHIKOV, A.Z.; NEMKONOV, S.A.

X-ray absorption spectra in compounds with a nickel-arsenide structure. Fiz. met. i metalloved. 10 no.3:390-396 S '60. (MIRA 13:10)

1. Institut fiziki metallov AN SSSR.
(Nickel arsenides--Spectra) (Spectrum, X-ray)

MEH'SHIKOV, A. Z.

Dissertation defended for the degree of Candidate of Physicomathematical Sciences at the Institute of Metal Physics in 1962:

"Investigation of the Physical Nature of Difficultly Usable and Several Other Compounds of Chromium Using X-ray Spectroscopy."

Vest. Akad. Nauk SSSR. No. 4, Moscow, 1963, pages 119-145

S/849/62/000/000/004/016
A006/A101

AUTHORS: Nemnonov, S. A., Men'shikov, A. Z.

TITLE: Comparison of X-ray absorption K-spectra in compounds formed by chromium with elements of subgroup IV (C, Si, Ge)

SOURCE: Vysokotemperaturnyye metallokeramicheskiye materialy. Inst. metalloker. i spets. spl. AN Ukr.SSR. Kiev, Izd-vo AN Ukr.SSR, 1962, 29 - 35

TEXT: An investigation was made for the purpose of determining whether a correlation existed between X-ray spectra of metal-like compounds in the Cr-C, Cr-Si and Cr-Ge systems. The authors analyzed X-ray absorption K-spectra of chromium in carbides (Cr_4C, Cr_7C_3 and Cr_3C_2), silicides (Cr_3Si, Cr_3Si_2(Cr_5Si_3), CrSi and $CrSi_2$) and chromium alloys with germanium (50 and 60 at.% Ge). An illustration shows K-edges of chromium absorption in the compounds investigated. The energy state of the basic section of the main absorption edge is characterized by three points: point b - the center of the initial absorption range (section abc); ξ the center of the whole discontinuity; A - the first absorption

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maximum. All the spectra investigated show an initial absorption range whose energy state is characterized by point b, which remains the same for all the compounds investigated, independent of the height of the initial absorption. Point [illegible] indicates satisfactorily the changes in the absorption intensity in the C-A range, which is displaced to the short wavelength side with higher ionization degree. These characteristic points make it possible to study in detail changes in the basic K-edge of Cr absorption from one compound to the other. The absorption coefficient curves obtained are analyzed and the absorption spectra of silicides and carbides are compared. It was found that the energy spectra of electronic vacancies of silicides and carbides are substantially different. Apparently the different atomic radii of carbon and silicon play an important part in the formation of the crystal lattice type and the nature of interatomic interaction. A comparison of Cr-Ge and Cr-Si spectra shows that a full analogy does not exist, although there are some common features. The different structures of the basic K-edge of Cr absorption near maximum A for CrGe and CrSi prove the substantial difference of their energy spectra in the indicated range. As a result the experiments performed have shown that there is a general resemblance in the structure of electron shells of elements of the

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subgroup IV; nevertheless, carbon, silicon and germanium form metal-like compounds with chromium, whose structures of energy spectra and, consequently, whose physical properties are substantially different. The authors thank G. V. Samsonov, Corresponding Member of AS Ukr.SSR, for Cr-silicide and -carbide specimens made available. There are 1 figure and 1 table.

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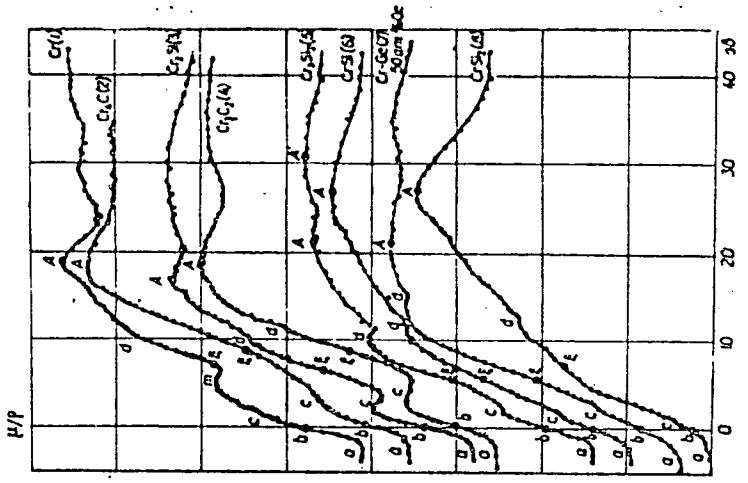
Figure. The basic K-edge of Cr-absorption in compounds and Cr metal



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MEN'SHIKOV, A.Z.; NEMNONOV, S.A.

Effect of chemical bonding on the $K\beta_{2,5}$ I X-ray emission line in chromium compounds. Fiz. met. i metalloved. 14 no.2:186-194 Ag '62. (MIRA 15:12)

1. Institut fiziki metallov AN SSSR.
(Chromium compounds) (X-ray spectroscopy)

MEN'SHIKOV, A.Z.

Measurement of the realtive intensity of the X-ray spectrum $K\beta_5$ -line. Fiz. met. i metalloved. 14 no.2:293-296 Ag '62. (MIRA 15:12)

1. Institut fiziki metallov AN SSSR.
(X-ray spectrosocpy)

MEN'SHIKOV, A.Z.; NEMNONOV, S.A.; MISHCHENKO, L.B.

Effect of chemical bonds on L_2 and L_3 energy levels of a chromium atom. Fiz. met. i metalloved. 14 no.3:383-386 S '62. (MIRA 15:9)

1. Institut fiziki metallov AN SSSR.
(Chromium--Spectra) (Chemical bonds)