

A Closed Convective Boundary Layer

SOV/20-124-2-15/71

The authors do not give the entire calculations but only the final formulas: $\omega = 0.629 (\nu/R^2)(G/Pr)^{1/2}$;

$\delta = 4.34 R(GPr)^{-1/4}$; $\alpha = -2.69$; $\beta = -(4.03 + 1.55/Pr)$.

By means of the formulas derived it is possible to calculate the density of the heat flow on any point of the surface. Finally, a formula is given for the total heat current passing through the cross section. The condition for the existence of the investigated convective motion is $GPr > 350$. At low values of the Rayleigh (Roley)- parameter GPr there is a weak convection without the formation of a boundary layer. There are 1 figure and 4 references, 1 of which is Soviet.

ASSOCIATION: Permskiy gosudarstvennyy universitet im. A. M. Gor'kogo
(Perm' State University imeni A. M. Gor'kiy)
Permskiy pedagogicheskiy institut (Perm' Pedagogical Institute)

PRESENTED: September 20, 1958, by M. A. Leontovich, Academician

SUBMITTED: September 19, 1958

Card 3/3

ZHUKHOVSKIY, G.V.

Concentration and separation of Ural iron ores. Cor.zhur. no.2:
58-61 F '63. (MIRA 16:2)

1. Ural'skoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo
instituta mekhanicheskoy obrabotki poleznykh iskopayemykh, Sverd-
lovsk.

(Ural Mountains--Iron ores) (Ore dressing)

ZHUKHOVSKIY, Adam [Zuchowski, Adam], doktor tekhn.nauk

Theoretical principles of the derivation of a scale with given characteristics in electromagnetic measuring devices with round coils. *Izv.vys.ucheb.zav.; elektromekh.* 5 no.9:1014-1023 '62.
(MIRA 16:1)

1. Kafedra elektricheskikh izmereniy Shchetsinskogo politekhnicheskogo instituta, Pol'sha.
(Electric meters) (Magnetic measurements)

MOVCHAN, V.A.; ZHUKINSKIY, V.N. [Zhukins'kiy, V.N.]

Some ecological characteristics of the spawning period of
Chalcalburnus chalcoides Güld in the Kuban [with summary in
English]. Dop.AN URSS no.12:1364-1366 '58. (MIRA 12:1)

1. Chlen-korrespondent AN USSR (for Movchan). 2. Kiyevskiy
gosudarstvennyy universitet.
(Kuban---Carp)

SOROKIN, Ye.; ZHUKINSKIY, Ya.

Modernization of the K-51 truck crane. Avt.transp. 42 no.1:42-43
Ja '64.
(MIRA 17:2)

ZIRKLIŠ, I.P., Cand Bio Sci--(diss) *Dutch elm* "The ~~Holland~~ disease of ~~elm~~
~~trees~~ in the Lithuanian SSR, ~~the~~ study of ^{the} biology of its cau- *defining*
sative agent Ceratostomella ulmi (Schw.) Buism., and ~~the~~ development
of measures ^{to control} ~~of combatting it.~~" Vil'nyus, 1958. 21 pp (Min of
Higher Education USSR. Vil'nyus State U in V. Kapaukas), 100 co-
pies (ML,22-58,105)

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BELYAKOV, F.Ye.; BABIN, B.N.; BAL', V.; BOROVKOV, P.N.; VOYEVODIN, I.N.;
 GUREVICH, G.M.; GORBUNOVA, P.I.; KONNOV, A.S.; KALANTAROVA, M.V.;
 KASHIRSKIY, A.Ya.; KAZANCHIYEV, Ye.N.; LEKSUTKIN, A.F.; LETI-
 CHEVSKIY, M.A.; LOPATIN, S.Z.; MIRSKIY, V.N.; PODSHVALOV, V.N.;
 SUBBOTINA, V.P.; TANASIYCHUK, N.P.; FEDOTOV, S.D.; FISENKO, K.N.;
 EL'KIND, I.G.; BOVIN, S.S.; VASIL'YEV, L.T.; DRINKOV, V.D.; DALE-
 CHIN, N.I.; DADAGOV, I.A.; YERMOSHINA, V.I.; ZHUKOV, I.V.; ZIMIN,
 D.A.; IVANNIKOV, A.Ya.; KOVALEV, M.K.; LUGAKOVSKIY, N.L.; MALEVSKIY,
 A.F.; SEREZHIKOV, V.K.; SEMIGLASOV, M.D.; SOKOLOV, A.V.; UMEROV, Sh.Kh.;
 V.I.; SAKHARIN, G.S.; SAVENKO, P.A.; SOLODOV, V.P.; STEPANOV,
 CHIKINDAS, G.S.; SHCHERBUKHINA, S.N.; DYNKIN, G.Z.; LYSOV, V.S.;
 OSHEROVICH, A.N.; ROKITSINSKIY, E.V.; BRASLAVSKIY, M.S.; RUDENKO,
 I.A.; ZHUKOBORSKIY, M.S.; ZHDANOV, I.Ye.; SUSLIN, V.A.; BRUS, A.Ye.;
 VOLYNSKIY, S.A.; KLYUYEV, V.A.; ISTRATOV, A.G.; TIKHOMIROV, I.F.;
 BUTYRIN, Ye.N.; VOLYNSKIY, S.A.; MINEYEV, M.F.; MAL'TSEV, V.I.;
 VIDETSKIY, A.F., kand.tekhn.nauk, glavnyy red.; DEMIDOV, A.N., red.;
 KRAVETS, A.L., red.; KLIMOVA, Z.I., tekhn.red.

[Industrial Astrakhan] Promyshlennaya Astrakhan'. Astrakhan',
 Izd-vo gazety "Volga," 1959. 318 p. (MIRA 12:11)
 1. Astrakhan (Province) Ekonomicheskiy administrativnyy rayon.
 (Astrakhan Province--Economic conditions)

AMURSKIY, G.I.; BORISOV, A.A.; ZHUKOBORSKIY, F.Ya.

Swells associated with deep fractures in the Kara Kum region of
the Epi-Hercynian platform. Neftgaz.geol. i geofiz. no.12:32-35
'64. (MIRA 18:3)

1. TsKTE pri Sovete Ministrov Turkmenskoy SSR i Vsesoyuznyy
nauchno-issledovatel'skiy institut geofizicheskikh metodov
razvedki.

REVIS, I.A.; LEVINSON, A.M.; MOROZIK, Ye.P.; Prinsipalni uchastiye:
ZHUKOBORSKIY, S.L., inzh.; BAYEV, A.A., inzh.; SOLOMAKHIN,
S.I., inzh.; VESHCHEV, Ye.V., tehnik; SYSOYEVA, Ye.Ya., laborant

Effect of the technology of the manufacture of the disk knives
for paper cutting on their strength. Bumagdel. mash. no.12:
176-206 '64. (MIRA 17:11)

1. Leningradskiy tekhnologicheskii institut tsellyulozno-bumazhnoy
promyshlennosti (for Zhukoborskiy, Bayev, Solomakhin, Veshchev,
Sysoyeva).

ZHUKOBORSKIY, S.

From our experience in work cooperation. Tekh. est. 2 no.7:15
Jl '65. (MIRA 18:8)

1. Glavnyy inzh. Leningradskogo remontno-montazhnogo kombinata
tresta "Rostorgmontazh".

Meteorological Abstr.
Vol. 4 No.9
Sept. 1953
Part I
Climatology and
Bioclimatology

4.9-207 551.582.2:551.585.5:551.584(57)
Kashkarov, Daniil Nikolaevich, Zhukov, A. and Staniukovich, K.; Khobodnala pustynia
Tsentral'nogo Tian-shania. Resul'taty Ekspeditsii LGU letom 1934 g. [The cold desert of
Central Tien Shan. Results of expedition of LGU (Leningrad State University) in summer
1934.] Leningrad, LGU Izdat., 1937. 116 p. photog., diagrs., graphs, refs. DLC—
Chap. I (p. 12-35) contains in the section on Macroclimate, data on temperature (yearly
mean and seasonal distribution), precipitation, humidity of the air, winds, rate of cooling with
altitude, cloudiness, intensity of solar radiation, weather variations, temperature of the soil,
permafrost and underground ice. Deviations from the means, which to a certain extent
alleviate the gloomy picture described in this section, are discussed in the section on Eco-
and Microclimatic Data. The chapter concludes with a comparison of the climate of the cold
desert with the climate of Pamirs and Novaya Zemlya. *Subject Headings:* 1. Climatic data
2. Microclimatology 3. Desert climates 4. Tien Shan, Kirgizia 5. U.S.S.R.—C.K.

ZHUKOV, A.; POLYANSKIY, N.

Lens turret for the "Kvarts" camera. Sov. foto 22 no.12:32-33
D '62. (MIRA 16:1)

(Motion-picture cameras)

ZHUKOV, A. Lt. Col.

"Radar Guiding Operation," Krasnaya Zvezda, No.248, p. 2, 19 October 1955

The author describes an exercise in guiding the fighter airplanes with the help of a ground radar station. The information apparently stresses the need for practical ~~and~~ training and teamwork of the station crew.

D 492561

PODOROZHNYI, A., inzh.; ZHUKOV, A.

Letters to the editor. Muk.-elev. prom. 27 no.10:31 0 '61.
(MIRA 14:12)

1. Talovskiy khlebopriyemnyy punkt (for Podorozhnyy).
2. Zamestitel' direktora po kachestvu Dzharkurganskoy realizatsionnoy bazy Uzbekskoy SSR. (for Zhukov).
(Grain elevators)

Zhukov, A.

AMRADV. 18.

They doubled the mill's production capacity. (See, however, item 2)
no. 2:32 J1 '57. (1958 10:9)

1. Samarkandskaya molitorna realizatsionnyy...
(Grain milling)

ZHUKOV, A.

USSR/Agriculture - Fertilizers, Mineral Sep 49
Phosphate Fertilizers

"Review of Professor N. S. Avdonin's Pamphlet,
"A New Effective Method of Using Mineral Fertilizers," A. Zhukov, 1 p

"Znanie i Zhizn'" No 9

When superphosphate is used haphazardly, only a small part can be utilized by the plant. Avdonin suggested that superphosphate be used in granulated form and introduced into soil in small doses. At T. D. Lysenko's suggestion, Soviet chemical industry has begun production of

15071

USSR/Agriculture - Fertilizers, Mineral Sep 49
(contd)

granulated superphosphate. Avdonin also suggested a method for preparing granulated superphosphate directly in agricultural production.

15071

ZHUKOV, A., kandidat tekhnicheskikh nauk; KALINOV, Ye., inzhener; TROTSKO, T.,
inzhener.

Obtaining porous lightweight concretes from clays. Stroimaterialy
konstr. 1 no.9:26-27 S'55. (MLRA 9:1)
(Lightweight concrete)

ZHUKOV, A., kandidat tekhnicheskikh nauk.

The Irpen brick factory. Stroimaterialy i konstruktsii no. 11:
36-37 N '55. (MLRA 9:5)
(Irpen--Brick industry)

ZHUKOV, A., kandidat tekhnicheskikh nauk.

Using fans for speeding up brick drying. Strel.mat., izdel. 1 konstr. 2
no.3:24-25 Mr '56. (MIRA 9:7)
(Drying apparatus)

~~ZHUKOV, A.~~ kandidat tekhnicheskikh nauk; MORACHEVSKIY, I., kandidat tekhnicheskikh nauk; KHUTORYANSKIY, M., kandidat tekhnicheskikh nauk.

Large-block wall materials made of brick. Stroi. mat., isdel.
1 konstr. 2 no.3:11-12 Ag '56. (MLRA 9:10)

(Building blocks)

ZHUKOV, A., kand. tekhn. nauk; SAKHAROVA, N., kand. tekhn. nauk; INOSOVA, N.,
inzh.; DIKOVA, S., inzh.

Technological characteristics of producing double-layer facing bricks.
Stroi. mat. 4 no.12:15-16 D '58. (MIRA 11:12)
(Brickmaking)

ZHUKOV, A., kand.tekhn.nauk; laureat Stalinskoy primii.

Expanded perlite. Bud.mat.i konstr. 1 no.1:34-37 0 '59.
(MIRA 13:8)

(Perlite (Mineral)) (Lightweight concrete)

ZHUKOV, A., inzh.

Manufacture of large-panel apartment houses on trolley-type
mills. Zhil. stroi. no.5:6-9 '62. (MIRA 15:6)
(Precast concrete)

ZHUKOV, A.

Three 80-apartment dwellings per month. Na stroi. Ros. 3 no.2:27-29
F '62. (MIRA 16:2)

1. Glavnyy inzh. Polyustrovskogo domostroitel'nogo kombinata No.1
Glavnogo Leningradskogo upravleniya po zhlisachnomu i grazhdanskomu
stroitel'stvu.
(Leningrad—Apartment houses)(Precast concrete construction)

ZHUKOV, A., kand.tekhn.nauk; PROKHORCHUK, V., inzh.; STADNIK, V., inzh.

Some technical and heat-engineering parameters of the production
of expanded perlite in a rotary kiln. Bud.mat.i konstr. no.5:
42-45 8-0 '62. (MIRA 15:11)
(Perlite (Mineral)) (Kilns, Rotary)

ZHUKOV, A., land.tekhn.nauk; TIMOFEYeva, N. [Tymofieieva, N.], inzh.

Dependence of the modulus of coarseness of expanded perlite "sand" on
the size of the fraction of raw material being expanded. Bud. mat.
i konstr. 4 no.1:49-51 Ja-F '62. (MIRA 15:7)
(Perlite) (Lightweight concrete)

ZHUKOV, A., kand.tekhn.nauk; LATASH, M., kand.tekhn.nauk

Concretes based on light aggregates for industrial construction.
Bud. mat. i konstr. 4 no.2:1-5 Mr-Ap '62. (MIRA 15:9)
(Lightweight concrete) (Industrial buildings)

ZHUKOV, A.

With the help of public workers. Okhr. truda i sots. strakh.
no.4:65 Ap '59. (MIRA 12:8)

1. Sekretar' Sverdlovskogo obkoma profsoyusa rabotnikov lesnoy,
bumashnoy i dereboobrabatyvayushchey promyshlennosti.
(Sverdlovsk Province--Forestry engineering--Hygienic aspects)

ZHUKOV, A.; MIKHAYLOV, A.; MIKULIN, V.; REDIN, N.

Measuring labor productivity at refractories plants. Biul. nauch.
inform.: trud i zar. plata 3 no.8:3-9 '60. (MIRA 13:9)
(Bogdanovich--Refractories industry--Labor productivity)

LUKIN, V.; ZHUKOV, A.

Improving the accounting for labor at the Podol'sk Refractory
Plant. Sots. trud 5 no.11:129-132 N '60. (MIRA 14:1)

1. Starshiy inzhener otdela Podol'skogo ogneupornogo zavoda (for
Lukin). 2. Vostochnyy nauchno-issledovatel'skiy i proyektnyy
institut ogneupornoy promyshlennosti (for Zhukov).
(Podol'sk--Refractories industry--Accounting)

ZHUKOV, A.

Planning and accounting for labor productivity using the conditional
accounting unit method at the Podol'sk Refractories Plant. Biul.nauch.
inform.: trud i zar.plata 4 no.6:16-20 '61. (MIRA 14:6)
(Podol'sk--Refractories industry--Labor productivity)
(Productivity accounting)

ZHUKOV, A.

Selecting a work schedule for refractories industry enterprises.
Biol. nauch. inform.: trud i zar. plata 5 no.6:19-21 '62.

(MIRA 15:6)

(Refractories industry)

DOSHKARZH, I. [Doskar, Josef], inzh. doktor; VALIKHRAKH, O. [Valihrach, Otakar], inzh.; GABRIYEL', Ya. [Gabriel, Jan]; KASHTANEK, O. [Kastanek, Otakar]; ZHUKOV, A.A. [translator]; EMINGER, Z., doktor nauk, retseñzent; POLYAKOV, Ya.G., red.; KRAUS, O., glav. red.; SIROTIN, A.I., red. izd-va; EL'KING, V.D., tekhn. red.

[Precision casting in ceramic molds] *Tochnoe lit'e v keramicheskie formy*. Pod red. IA.G. Foliakova. Moskva, Mashgiz, 1962. (MIRA 16:2)
295 p.

(Precision casting)

SHALASHOV, V.A.; Primalni uchastiye: BREGER, A.Kh.; ZHUKOV, A.A.;
GOL'DIN, V.A.; OSIPOV, V.B.

Effect of preirradiation on the structure and thermal decomposition of cementite. Zhur. fiz. khim. 38 no.2:485-488 F '64.
(MIRA 17:8)

1. Institut tekstil'nogo mashinostroyeniya.

ZHUKOV, A. A.
ILAK, Yaromir [Jilek, Jaromir]; ~~ZHUKOV, A.A.~~ inzhener [translator];
SHISHAKOV, N.V., doktor tekhnicheskikh nauk, redaktor; KLEYMENOVA,
K.F., vedushchiy redaktor; MARTYNOVA, M.P., vedushchiy redaktor;
POLOSINA, A.S., tekhnicheskii redaktor

[New methods of gasification of fuel by oxygen. Translated from the
Czech] Novye sposoby gasifikatsii topliva kislorodom. Perevod s
cheshskogo A.A.Zhukova, pod red. N.V.Shishakova. Moskva, Gos.nauchno-
tekhn. izd-vo neft. i gorno-toplivnoi lit-ry, 1957. 362 p. (MLRA 10:9)
(Gas producers) (Coal gasification)

ZHUKOV, A. A.

ZEL'TSBURG, L.M.; BELYAKOV, A.A.; ZHUKOV, A.A.

Universal autotransformer induction-resonance noncontact track
switch. Priborostroenie no.4:28-29 Ap '57. (MLRA 10:5)
(Automatic control)

MEL'NIKOV, M.V.; VINITSKIY, K.Ye., kand. tekhn. nauk; POTAPOV, M.G.,
kand. tekhn. nauk; Prinsipali uchastiye: ZHUKOV, A.A.;
KOSYREV, V.I.; SPIRIDONOV, V.I.

Principles of technological layouts for open-pit mines using
conveyor haulage exclusively. Nauch. soob. IGD 11:3-16 '61.
(MIRA 16:4)

1. Chlen-korrespondent AN SSSR (for Mel'nikov).
(Conveying machinery)

ZHUKOV, A.A.

Experimental studies to determine stresses in cutting rocks with
excavators. (Gor. i ekon. vop. razrab. ugot'. i rud. mest. no.1;
167-176 '62. (MIRA 16:7)
(Excavating machinery) (Strains and stresses)

YARKOVSKIY, Eduard [Jarkovsky, Eduard]; ZHUKOV, A.A., inzh. [translator];
LYZHIN, O.V., inzh., red.; MAKAROVA, L.A., tekhn. red.;
SMIRNOVA, G.V., tekhn. red.

[Fundamentals of practical calculations of diaphragms,
metering nozzles, and Venturi tubes] Osnovy prakticheskikh
reshetov diafragn, mernykh sopel i trub venturi. Izd. 2.,
perer. i dop. Pod red. O.V. Lyzhina. Moskva, Mashgiz, 1962.
314 p. (MIRA 16:3)

(Flowmeters)

L 6873-63

EW(1)/BDS/ES(v)-2 AFFTC/ASD/AFWL/SSD Pub-4
5/0158/63/000/007/G011/G012

ACCESSION NR: AR3006354

SOURCE: RZP. Fizika. Abs. 7957

AUTHOR: Zhukov, A. A.

TITLE: Some measurements of positive space charge produced by a self-maintaining cascade discharge at 2.5 -- 40 Mc alternating voltages

CITED SOURCE: Tr. Nauchn. ob'yedineniya prepodavatel'sk. i inzh. fak. ped. in-tov Dal'n. Vost. T. 2. Khabarovsk, 1962. 23-28

TOPIC TAGS: cascade discharge, positive space charge, microwave frequency

TRANSLATION: An experimental investigation was made of the influence of negative ions on the development of a spontaneous high frequency discharge in a gap between a sharp point and a plane. For a direct detection of the space charge around the sharp point prior to

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through the

stream and directed to the point
blown over the point without the

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ACCESSION NR: AR3006301

increase in current of positive ions to the indicator collector
 was observed only before the very beginning of the discharge.
 When the source of the negative ions was turned on, the current of
 positive ions to the collector increased sharply. A noticeable growth
 in the current is observed even at voltages that are 40--50 per cent
 lower than the critical voltage of spontaneous discharge. The
 dependence of the current on the voltage is shown in Fig. 1.
 The test is repeated several times. The results are similar.
 The current is great with a small voltage. It is not great at
 high voltages. The current is not great at high voltages.
 The current is not great at high voltages. The current is not great
 at high voltages. The current is not great at high voltages.

SUBJECT: ...

DATE ACQ: 15Aug63

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ZEL'TSBURG, L.M.; ZHUKOV, A.A.

Determination of the power and currents of a short-circuit using a derived units technique. Elektrichestvo no.9:76-77 S '63. (MIRA 16:10)

1. Gosudarstvennyy proyektnyy institut po projektirovaniyu predpriyatiy elektropromyshlennosti, Gor'kiy.

BOCHANNIKOV, G.B., inzh., k.t.n.; ZHUKOV, A.A., inzh.

Complex mechanization of the earthwork in construction of canals.
Khidrotek i melior 6 no.6:163-166 '61.

ZHUKOV, A.A.; OGAREV, A.P., starshiy nauchnyy sotrudnik; GORYACHKIN, I.I.

Use of high-strength cast iron for loom parts. Tekst. prom. 25
no.12:64-65 D '65. (MIRA 19:1)

1. Glavnyy inzh. Glukhovskogo liteyno-mekhanicheskogo zavoda
(for Goryachkin).

ZHUKOV, A.A., kand. tekh. nauk

Effect of oxygen on the solubility of carbon in liquid cast
iron. Lit. proizv. no.1:24-28 Ja '66. (MIRA 19:1)

ZHUKOV, A.A.

Structural anomalies in gray forge. Lit.proizv.no.12:16-20 D '57.
(MIRA 11:1)

(Cast iron--Metallography)

ZHUKOV, A.A.

BALAZOVSKIY, M.Ya.; ZHUKOV, A.A.

Method for determining subsurface defects in metals by means of
transverse supersonic vibrations. Zav.lab.23 no.2:252-253 '57.

(MIRA 10:3)

(Metals--Testing) (Ultrasonic waves--Industrial applications)

ZHUKOV, A.A., insh.

New method for cyaniding steels. Izobr. 1 rats. 3 no.5:6-7 My
'58. (MIRA 11:9)
(Cementation (Metallurgy))

ZHUKOV, N.

AUTHOR: Gulyayev, B.B. SOV/24-58-a-37/39
TITLE: Conference on Crystallization of Metals (Soveshchaniye po Kristallizatsii metallov)

PERIODICAL: Investitsiya Akademi Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 4, 77-153 - 155 (USSR)
ABSTRACT: This conference was held at the Institut Mashinovedeniya AN SSSR (Institute of Mechanical Engineering of the Ac.Sc. USSR) on June 25-27, 1958. About 400 people participated and the participants included specialists in the fields of foundry, metallurgy, crystallography, physics, welding, heat, physical chemistry, mathematical physics and other related subjects. In addition to Soviet participants, 12 foreign visitors included Professor D. Cziki (East Germany) and H. Chermak (Austria). This conference on crystallization of metals is the fourth conference relating to the general problem of the theory of crystallization processes.

Conference on Crystallization of Metals SOV/24-58-a-37/39

Crystallization of Cast Iron. I.A. Shanzarov and N.V. Pilyova in their paper "Investigation of the Crystallization of Magnesium-Insulated Iron", reported on experimental data relating to the conditions of solidification and the structure of castings made of magnesium-insulated iron; they presented a theory of crystallization of magnesium-insulated iron. B.B. Millman, in his paper "Investigation of the Process of Formation of Spheroidal Graphite in Iron", considers the influence of various factors and characteristics of the metal on the formation of graphite inclusions. The author, D. Cziki (East Germany) presented a paper on crystallization of graphite in cast iron, which was illustrated by extensive metallographical information. Ya.M. Melnikov, in his paper "The Problem of Crystallization of Intra-crystalline Structures of Silicon and its Influence on the Structural Diagram of Cast Iron", dealt with the mechanism of formation of centers of crystallization of graphite in castings made of white iron and the influence of the speed of crystallization on the distribution of alloying elements between the individual phases of iron-carbon alloys. L.V. Balli proposed a method of hardening of alloys from the liquid state using an already high speed of cooling; investigations relating to this method enabled conservation of saturated solution of carbon in iron which correspond to the liquid state. V.P. Khrushchovskiy dealt with the investigation of crystallization of cast iron, the primary structure of quasi-eutectic grey iron.

SOV/94-58-8-9/22

AUTHORS: Belyakov, A. A., Engineer and Zhukov, A. A., Engineer

TITLE: Minimum voltage protective circuits with time delay operated by a.c. (Skhemy zashchity minimal'nogo napryazheniya s vyderzhkoy vremeni na peremennom operativnom toke)

PERIODICAL: Promyshlennaya Energetika, 1958, Nr 8, pp 21-24 (USSR)

ABSTRACT: When operating circuits are converted from d.c. supply with storage batteries to a.c. supply it is minimum voltage protection that gives rise to the greatest difficulties. Several circuits have been developed for this purpose and are briefly described but none of them is quite satisfactory. The Gor'kiy Division of the State Planning Institute Elektroyekt has developed new minimum voltage protective circuits which are much better than previous ones. The special feature of these circuits is the use of one relay type EN-500 connected to two (Fig.1) or three (Fig.2) line voltages through selenium or other rectifiers. A capacitance is connected in parallel with the relay winding so that if one of the transformer fuses blow the voltage on the relay is almost unaltered. If the circuit of Fig.1 is used the voltage on the relay is

Card 1/3 halved but this difficulty is overcome by the circuit of

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Minimum voltage protective circuits with time delay operated by a.c.

Fig.2. The advantage of these circuits is that the relay EN-500 works entirely without vibration. The way in which the circuit of Fig.2 may be used to supply the operating circuit of a circuit breaker is shown in Fig.3. Figs. 4, 5 and 6 show different methods of obtaining time delay. Fig. 4 shows a circuit employing relay type EV-100 which operates when voltage is removed from the winding. The circuit of Fig.5 uses time-relay type MKU-48 which can give time delays of up to 10 seconds. Fig.6 is based on other relays which can give time delays of up to 15 seconds. The circuits in Figs.7, 8 and 9 show different methods of group minimum voltage protection using the elements already described. The results of tests made with some of these relays are given. It is concluded that minimum voltage protection can easily be arranged for a.c. operating current. Circuits that use very little power for minimum voltage protection with time delay can be obtained by using relay type MKU-48

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Minimum voltage protective circuits with time delay operated by
a.c.

with capacitors.
There are 10 figures.

Card 3/3

AUTHOR: Zhukov, A.A.

SOV/128-58-12-20/21

TITLE: The Causes of Reverse Chilling of Cast Iron (O prichinakh obratnogo otbela chuguna)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 12, pp 29 - 30 (USSR)

ABSTRACT:

In a letter to the editor, the author rejects the theory stated by Neizhko in the previous article, assuming a cause of reverse chilling of cast iron to be the reduced number of graphitization centers in the peripheral portions of metal castings. He states that reverse chilling of cast iron is mainly caused by the difference in degree of its residual intercrystalline segregation in different zones of the casting, and can be observed in particular, in zones of developed silicon segregation, which is intensified by the large-grain metal structure in the center of the casting. There are 2 photos and 2 graphs.

Card 1/1

ZHUKOV, A. A. Cand Tech Sci -- (diss) "Intra-crystalline liquidation of
silicon in pig-iron and the construction of structural diagrams." Mos, 1959,
16 pp (State Committee of the Council of Ministers USSR on Automation and
Machine Building. Central Sci Res Inst of Technology and Machine Building
TsNIITMash), 150 copies (KL, 48-59, 114)

BERG, P.P., doktor tekhn.nauk; BIDULYA, P.N., doktor tekhn.nauk; GRECHIN, V.P., kand.tekhn.nauk; DOVGALEVSKIY, Ya.M., kand.tekhn.nauk; ZHUKOV, A.A., inzh.; ZINOV'YEV, N.V., inzh.; KRYLOV, V.I., inzh.; KUDRYAVTSEV, I.V., doktor tekhn.nauk; LANDA, A.F., doktor tekhn.nauk; LEVI, L.I., kand.tekhn.nauk; MALAKHOVSKIY, G.V., inzh.; MIL'MAN, B.S., kand.tekhn.nauk; SOBOLEV, B.F., kand.tekhn.nauk [deceased]; SKOMOROKHOV, S.A., kand.tekhn.nauk; STEPIN, P.I., kand.tekhn.nauk; USHAKOV, A.D., kand.tekhn.nauk; FRIDMAN, L.M., inzh.; KHRAPKOVSKIY, E.Ya., inzh.; TSYPIN, I.O., kand.tekhn.nauk; SHKOL'NIKOV, E.M., kand.tekhn.nauk; POGODIN-ALEKSEYEV, G.I., prof., doktor tekhn.nauk, red.; BOLKHOVITINOV, N.F., prof., doktor tekhn.nauk, red.toma; LANDA, A.F., prof., doktor tekhn.nauk, red.toma; RYBAKOVA, V.I., inzh., red.izd-va; SOKOLOVA, T.F., tekhn.red.

[Handbook on materials used in the machinery industry] Spravochnik po mashinostroitel'nym materialam; v chetyrekh tomakh. Pod red. G.I.Pogodina-Alekseeva. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry. Vol.3. [Cast iron] Chugun. Red.toma N.F.Bolkhovitov i A.F.Landa. 1959. 359 p. (MIRA 13:1)
(Machinery industry) (Cast iron)

ZHUKOV, A.A.

Conodal nomogram for calculating the composition, structure and strength of pearlitic cast irons. Lit. proizv. no.1:36-41 Ja '59. (MIRA 12:1)

(Cast iron--Testing) (Nomography (Mathematics))

SOV/129-59-4-12/17

AUTHOR: Zhukov, A.A. (Engineer)

TITLE: On the Brittleness of High Strength Spheroidal Iron
(O khрупkosti vysokoprochnogo chuguna s sharovidnym grafitom)

PERIODICAL: Metallovedeniye i Termicheskaya Obrabotka Metallov,
1959, Nr 4, pp 53-55 (USSR)

ABSTRACT: Kudryavtsev et alii (Ref 1) found that an increase in the impact strength of high strength cast iron with increasing temperature is due to "position of the brittleness threshold of such iron. Thus, the temperature of the brittleness threshold of pearlitic irons is very high, amounting to 200°C. The author of this paper considered it of interest to study the possibility of reducing the temperature of transition of this material into the brittle state. Results of G.N. Gilbert (Ref 2) show that the constituents of the high strength cast iron are particularly harmful as can be seen from the graph (Fig 1) in which the influence is plotted of the Si and P contents on the location of the brittleness threshold of high strength spheroidal irons. Phosphorus increases appreciably the brittleness threshold only if its content exceeds 0.08 to 0.1%. The base structure of

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SOV/129-59-4-12/17

On the Brittleness of High Strength Spheroidal Iron

the metal also has a considerable influence; the lowest brittleness threshold temperature (-500C) was observed for ferritic high strength cast irons (Ref 2). The brittleness threshold is greatly influenced by the stress concentrations; it can be seen from the data of Tables 1 and 2 that, as a result of notching, a tough iron may become brittle. The brittleness threshold temperature can also be reduced by heat treatment. Fractures in components made of high strength iron, without traces of residual plastic deformation and without any signs of fatigue breaks, which do occur in practice, are attributed to the fact that the metal is in the brittle state at the respective operating temperature. On the basis of the obtained data a number of recommendations are made, one of which is that, in view of the fact that stress concentrations bring about a displacement of the brittleness threshold in spheroidal irons, impact strength

Card 2/3

SOV/129-59-4-12/17
On the Brittleness of High Strength Spheroidal Iron
tests should be made on notched specimens.
There are 3 figures, 2 tables and 5 references, 3 of
which are Soviet and 2 English.

Card 3/3

14(2), 30(1)

SOV/99-59-11-6/15

AUTHOR:

Bocharnikov, G.B., Candidate of Technical Sciences,
Zhukov, A.A. and Osipchuk, L.N., Engineers

TITLE:

Construction of the Dnepr - Krivoy Rog Canal

PERIODICAL:

Gidrotekhnika i melioratsiya, 1959, Nr 11, pp 24-33
(USSR)

ABSTRACT:

This article describes the Dnepr - Krivoy Rog Canal, presently under construction, as well as some of the methods and equipment used in its construction. The canal - 42.2 km long - has its source in the Kakhovskoye vodokhranilishche (Kakhovka reservoir), passes thence to the west of the town of Apostolovo and ends in the Yuzhnoye reservoir (capacity - 36.5 million cubic meters), located in the Taranovoy and Chelbanke gorges. From here water will be carried by open canals to the Kresov reservoir on the Saksagan' river, and to the Ingulets river, and by closed pipe-line to a filter station and the industrial enterprises of Krivoy Rog. The overall reserve capacity of the Yuzhnoye and Kresov reservoirs is 51 million m³. Construction of the canal, state the authors, is aimed at

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SOV/99-59-11-6/15

Construction of the Dnepr - Krivoy Rog Canal

solving the problem of water supply to the Krivoy Rog basin, and the canal should deliver more than 650 million m³ of water yearly to consumers, of which 500 m³ is intended for technical needs, 100 million m³ for household and drinking use and 50 million m³ for irrigation purposes; the overall land area to be irrigated by the canal will be 24,500 hectares, with the prospect of raising this figure to 41,500 hectares. Dimensions of the canal are given, and a cross section diagram presented (Fig 3); it is computed that the canal will handle 38 m³/sec of water; the upper part of the banks is reinforced with a 0.2 meter layer of pulverized rock. The canal route is mapped (Fig 1) and briefly described. Raising water from the level of the Kakhovka reservoir to that of the Yuzhnoye reservoir (a difference of 85 m) will be accomplished by three pumping stations equipped as follows: installed in the first station will be 56 V-17 vertical cantilever centrifugal pumps with a metallic spiral chamber, in the second and third stations, OP 4-145 vertical rotary axial pumps; each pump is directly connected with

Card 2/6

SOV/99-59-11-6/15

Construction of the Dnepr - Krivoy Rog Canal

a synchronous electric motor, and the power of the electric motors varies from 700 to 2000 kw; the start-stop process at all stations is fully automatized, and may be controlled locally as well as from a control point. Other constructions along the canal route are outlined, including 59 km of road, 50 km of 35 kv transmission line, 42 km of 6 kv transmission line and 35/6 kv electric sub-stations; as of the middle of 1959 35 km of 35 kv line, 42 km of 6 kv line and three of the sub-stations were built, and 7 km of the canal were completed. Work on the canal was started in the second half of 1957 by the ordena Lenina spetsializirovannoye stroitel'no-montazhnoye upravleniye "Dneprostroy" (Specialized Construction-Installation Administration of the Order of Lenin "Dneprostroy"); construction offices are located in Apostolovo and Mar'yanskoye. Among other facilities listed is a concrete works in the village of Radushnoye (Fig 4). Work on the canal and road beds is to be done by the Upravleniye mekhanizirovannykh rabot "Dneprostroya" (Office of Mechanized Works of "Dneprostroy").

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Construction of the Dnepr - Krivoy Rog Canal

The following equipment is presently in use: 25 excavators, 50 bulldozers, 12 scrapers, 7 graders, 4 motor-graders, 1 grader-elevator, 21 tractors and 10 rollers. Earth work was begun in February, 1958, and full mechanization of this work is projected; excavators are to handle 70%, scrapers - 20% and bulldozers - 10% of the overall volume of this work. Various methods of working on the canal bed are outlined. One method, very briefly described, proposed by the Nauchno-issledovatel'skiy institut organizatsii, mekhanizatsii i ekonomiki stroitel'stva i arkhitektury USSR (Scientific-Research Institute of the Organization, Mechanization and Economics of Construction of the Academy of Construction and Architecture of the UkrSSR) in 1958 is illustrated (Fig 5) using a bulldozer on an S-80 tractor. Use of a D-20A grader on the canal banks is also shown (Fig 6). Construction work on the earth dike of the Yuzhnoye reservoir is also briefly described and illustrated (Fig 7). The authors report that first use of the ZFM-3000 excavating-cutting machine, an experimental model of which

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SOV/99-59-11-6/15

Construction of the Dnepr - Krivoy Rog Canal

was produced by the Voronezhskiy gosudarstvennyy ekskavatornyy zavod imeni Komintern (Voronezh State Excavator Works imeni Komintern), was made in the construction of the Dnepr - Krivoy Rog canal; this excavator is self-powered by a diesel-electric power installation and equipped with hydraulic control, and is intended for digging canals up to 40 m across (at the top) and up to 6m deep; some specifications are given and its operation and use are described and illustrated (Fig 9). At present the excavator is undergoing tests. Also in use at the canal are bulldozers on DET-250 and S-100 tractor units; the DET-250, put out by the Chelyabinskiy traktorny zavod (Chelyabinsk Tractor Works), with 250 hp has a diesel electric motor (300 V) and DK-913 auxiliary electric motor; the DET-250 is illustrated (Fig 10); the DET-100 is a 100 hp unit; some specifications for both units are given; both are equipped with hydraulic control systems, and both are under tests at the canal site. Briefly discussed is a study of improvement in the organization of excavating and facing work in canal construction

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SOV/99-59-11-6/15

Construction of the Dnepr - Krivoy Rog Canal

started in 1958 by the Scientific-Research Institute of the Organization, Mechanization and Economics of Construction of the Academy of Construction and Architecture of the UkrSSR in connection with construction of the Dnepr-Krivoy Rog Canal. In conclusion the authors note that the canal is expected to be finished in 1960. The following persons are mentioned: V. Pavlov, bulldozer operator, I. Dashko, V. Filenko, I. Guba and M. Simorod, scraper operators, G. Il'kiv and M. Dudarev, tractor drivers, and V. Shevtsov and A. Primak, excavator operators. There are 7 photographs, 1 map and 2 diagrams.

Card 6/6

NUGLICHEK, F. [Nuhliček, František]; ZHUKOV, A.A., inzh. [translator];
SOKOLOVA, T.F., tekhn.red.

[Sliding bearings made of plastics] Podshipniki skol'zhenia
iz plastmass. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.
lit-ry, 1960. 70 p. (MIRA 13:11)
(Plastic bearings)

EMINGER, Zdenek, kand.tekhn.nauk, laureat gosudarstvennoy premii; WEBER, Karel
[Weber, Karel], prof.; ZHUKOV, A.A., inzh. [translator]; TIKHANOVA,
A.Ya., tekhn.red.; EL'KIND, V.D., tekhn.red.

[Making special steel castings] Proizvodstvo otlivok iz spetsial'-
nykh stali. Moskva, Gos.nauchno-tekhn.isd-vo mashinostroit.lit-ry,
1960. 138 p. Translated from the Czech. (MIRA 13:6)
(Steel castings) (Steel alloys)

Z HUKOV, A. A.

THEORY OF METALS
STRUCTURE OF METALS
CRYSTALLIZATION OF METALS

...the book contains the transactions of the Fourth Conference (1958) on the Theory of Casting Processes. [The previous 3 conferences dealt with the hydrodynamics of molten metals (1955), solidification of metals (1956), and diffusion processes in crystals (1957)]. Other problems in the theory of casting processes are treated, including the crystallization of constructional steels, alloys steels with special properties, cast iron, and of non-ferrous alloys. An extensive bibliography is given to D. E. Carnoy and E. T. Ostleev and their colleagues, E. I. Ostleev and A. G. Spasskiy, for their contributions to the understanding of the basic problems involved in the theory of crystallization of ferrous and nonferrous metals and alloys. Academician A. V. Shubnikov is also mentioned in connection with his work on the planning of research on crystal formation. ...

III. CRYSTALLIZATION OF SPECIAL-PROPERTY METALS AND ALLOYS

...the book is intended for metallurgists and scientific workers. It may also be useful to technical personnel at foundries.

IV. CRYSTALLIZATION OF CAST IRON

...the book is intended for metallurgists and scientific workers. It may also be useful to technical personnel at foundries.

V. CRYSTALLIZATION OF FERROUS ALLOYS

...the book is intended for metallurgists and scientific workers. It may also be useful to technical personnel at foundries.

VI. CRYSTALLIZATION OF NON-FERROUS ALLOYS

...the book is intended for metallurgists and scientific workers. It may also be useful to technical personnel at foundries.

AKSENOV, P.N.; BERG, P.P.; GODASHKOV, N.M.; VEYNIK, A.I.; GORSHKOV, A.A.;
ZHAROV, N.T.; ZHUKOV, A.A.; ZOROKHOVICH, I.Z.; KUMANIN, I.B.;
LEVI, L.I.; LYASS, A.M.; MARIYENBAKH, L.M.; ORLOV, G.M.; PORUCHI-
KOV, Yu.P.; RABINOVICH, B.V.; STOLBOVOY, S.Z.; FEYGL'SON, B.Yu.;
VASILEVSKIY, P.F., red.; KLOCHNEV, N.I., red.; KONSTANTINOV, L.S.,
red.; POLYAKOV, Ya.G., red.; MARKIZ, Yu.L., red. izd-va; UVAROVA,
A.F., tekhn. red.

[Theory of founding processes] Voprosy teorii liteynykh protsessov.
Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1960. 692 p.
(MIRA 13:7)

(Founding)

BOCHARNIKOV, G., kand.tekhn.nauk; ZHUKOV, A., insh.; OSIPCHUK, L., insh.

Using production line methods in earthwork during the construction of the Dnieper-Krivoy Rog Canal. Stroiti arkhitekt. 8
no.6:24-26 Ja '60. (MIRA 13:6)
(Dnieper-Krivoy Rog Canal) (Earthwork)

BOCHARNIKOV, G.B., kand.tekhn.nauk; ZHUKOV, A.A., inzh.

The over-all mechanization of earth work in the construction
area of the Dnieper-Krivoy Rog Canal. Gidr.stroi. 30 no.7:
8-12 J1-'60. (MIRA 13:7)
(Dnieper-Krivoy Rog Canal)
(Earthwork)

PRZHIBYL, Yozef [Pribyl, Josef]; ZHUKOV, A.A., inzh. [translator];
BIDUL', P.N., prof., doktor tekhn.nauk, zasluzhennyi deyatel'
nauki i tekhniki, red.; MARKIZ, Yu.L., inzh., red.izd-va;
DOBRITSYNA, R.L., tekhn.red.

[Theory of casting] Nekotorye voprosy liteinnoi teorii. Pod
red. P.N.Bidulia. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.
lit-ry, 1961. 138 p. (MIRA 14:6)
(Founding)

ZHUKOV, A.A., kand.tekhn.nauk

Fluctuating nucleation of centers of graphitization in cast iron
and in steel. Metalloved. i term. obr. met. no.5:22-25 My '61.
(MIRA 14:5)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.
(Cast iron--Metallography)
(Metal crystals--Growth)

ZHUKOV, A.A. (Moskva)

Thermodynamic activity of carbon in iron-carbon alloys. Izv.
AN SSSR. Otd. tekhn. nauk. Met. i topl. no.6:88-94 N-D '61.
(MIRA 14:12)

(Iron alloys) (Gas dynamics)

ZHUKOV, A.A., kand.tekhn.nauk

Some problems in the theory of graphitization of carbon-iron alloys.

Izv.vys.ucheb.zav.; mashinostr. no.10:131-142 '61.

(MIRA 14:12)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.
(Iron alloys--Metallography)

ZHUKOV, A.A.

Letter to the editors. Lit. proizv. no.12:39 D '61.(MIRA 14:12)
(Cast iron--Metallography)

BOCHARNIKOV, G.B., kand.tekhn.nauk; ZHUKOV, A.A., inzh.

Continuous earthwork operations in the construction of canals.

Mekh.stroi. 18 no.7:11-13 J1 '61.

(MIRA 14:7)

1. Nauchno-issledovatel'skiy institut organizatsii i mekhanizatsii
stroitel'nogo proizvodstva Akademii stroitel'stva i arkhitektury
USSR.

(Ukraine—Canals)

(Earthwork)

S/076/61/035/009/012/015
B124/B101AUTHOR: Zhukov, A. A.

TITLE: Phase diagram of eutectic alloys

PERIODICAL: Zhurnal fizicheskoy khimii, v. 35, no. 9, 1961, 2137 - 2141

TEXT: Data on the principles of drawing diagrams for the alloys Fe-C-Si, Fe-C-P, and Fe-C-Si-P using combined sections are given in this paper. When the polythermal section technique is used for the diagram of the ternary system Fe-C-Si along the tie lines solid solution - eutectic alloy - cementite (or graphite, respectively), diagrams are obtained which show no fundamental difference from those for binary alloys. From the conoidal section, the phase composition can be quantitatively determined, as well as the composition of the eutectic alloy during the initial period of eutectic conversion, and, finally, the degree of eutecticity using the lever rule. To determine the change in composition for the alloy during eutectic conversion, the oblique polythermal section of the ternary diagram according to the thalweg $CL_{1k}L_{2k}K$ (Fig.3) was used. When this section was projected

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B124/B101

Phase diagram of eutectic...

onto the plane of the Si-C diagram, it was shown that it is actually the classical binary eutectic system consisting of carbon (γ - Fe_3C , i.e., carbon eutectic of γ -iron) and silicon (α - Fe_3Si , i.e., silicon eutectic of α -iron - FeSi) having two peritectic faces. The sum of components on the diagram scales in Fig. 3 is not 100%, contrary to the diagrams for binary alloys; the iron content is established from this difference. Fig. 4 shows the projection of the oblique polythermal section of the phase diagram Fe-C-P according to the thalwegs adjacent to the 100%-Fe corner. In this case, a eutectic system consisting of a carbon (γ - Fe_3C) and a phosphide (α - Fe_3P , i.e., the phosphide eutectic of α -iron) eutectic, having one eutectic and one peritectic face, is involved. When the crystallization of ternary alloys undergoing eutectic conversion is studied, two two-dimensional diagrams, i.e., combined conodial and thalweg sections of the ternary diagram, can be used instead of the three-dimensional one, with the conodial section representing the state of the alloy prior to eutectic conversion and the thalweg section representing it during this process. The technique described can be used to plot ternary diagrams for quaternary eutectic alloys, where the oblique section of the concentration tetrahedron has to be accomplished along the faces of the eutectic alloys adjacent to the 100%-Fe

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S/076/61/035/009/012/015
B124/B101

Phase diagram of eutectic...

corner, and the section obtained has to be projected onto a plane. In contrast to Kurnakov's singular polyhedration, this method is called "eutectic polyhedration"; it reduces the dimension of the diagrams obtained by one order of magnitude with respect to the initial diagrams. There are 6 figures and 6 Soviet references.

ASSOCIATION: Moskovskoye Vyssheye tekhnicheskoye uchilishche im. Bauman'a (Moscow School of Higher Technical Education imeni Bauman)

SUBMITTED: December 21, 1960

Fig.3. Section of the Fe-C-Si diagram according to the thalwegs adjacent to the 100%-Fe corner

Legend: (1)Ж - liquid, (2)УЗ - carbon eutectic, (3)КЗ - silicon eutectic

Fig.4. Section of the Fe-C-P diagram according to the thalwegs adjacent to the 100%-Fe corner

Legend: (1)Ж - liquid, (2)ФЗ - phosphidic eutectic, (3)УЗ - carbon eutectic, (4)УФЗ - carbon-phosphide eutectic

Card 3/

ORLOV, A.A., kand.tekhn.nauk; ZHUKOV, A.A., inzh.

Study of the performance of the KM-9 steel support unit for thin flat
seams. [Trudy] VNIMI no.45:246-253 '62. (MIRA 16:4)
(Mine timbering—Equipment and supplies)

ZHUKOV, A.A. (Moskva)

Calculations of thermodynamic carbon activity in iron-carbon-phosphorus alloys. Izv. AN SSSR. Otd. tekhn. nauk. Met. i topl. no.1:36-41 Ja-F '62. (MIRA 15:2)

(Iron alloys--Metallography)
(Phase rule and equilibrium)
(Activity coefficients)

ZHUKOV, A.A., kand.tekhn.nauk

Calculating the thermodynamic activity of carbon in iron-carbon-phosphorus alloys. Izv.vys.ucheb.zav.; mashinostr. no.2:182-188 '62. (MIRA 15:5)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana.
(Iron-carbon-phosphorus alloys)

ZHUKOV, A. A., kand. tekhn. nauk; FOKIN, G. F., assistant

Effect of magnesium on the chilling of cast iron. Izv. vys.
ucheb. zav.; mashinostr. no. 7:140-146 '62.

(MIRA 16:1)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni
Baumana.

(Cast iron—Testing) (Magnesium)

ZHUKOV, A.A.

Geometrical thermodynamics of iron alloys. Izv. vys. ucheb. zav.;
chern. met. 5 no.9:165-172 '62. (MIRA 15:10)

1. Moskovskoye vyssheye tekhnicheskoye uchebnoye imeni N.E.Baumana.
(Iron alloys—Thermal properties)

36300

S/126/62/013/002/012/019
E111/E135

18.1100
AUTHOR:
TITLE:

Zhukov, A.A.

Phase diagrams and thermodynamic-activity diagrams
of the alloy components

PERIODICAL: Fizika metallov i metallovedeniye, v.13, no.2, 1962,
280-287

TEXT: The author discusses the relations between the positions of lines in alloy phase diagrams and of the corresponding lines of constant activity. Several examples are given of the wide scope of the method for obtaining greater precision in the position of phase boundaries, particularly for iron-carbon alloys and Fe-C alloys with silicon or phosphorus. The solidus line for austenite in the Fe-C diagram is discussed, on which there are contradictions in the literature. Using the iso-activity lines for the areas on either side of this line the author shows that this is convex with respect to the austenite + liquid region. This agrees with one view (Ref.3) but contradicts another (Ref.10). The author applies similar methods to sections of ternary systems.

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Phase diagrams and thermodynamic- ... S/126/62/013/002/012/019
E111/E135

In the 1155 °C isothermal section of Fe-C-Si there are contradictory views on the position of the conode austenite-eutectic melt (Fig.2: line 1 gives the position according to one group of workers (Refs.10-12); line 2 that according to J.E. Hilliard, W.S. Owen (J.Iron and Steel Inst., v.172, no.3, 1952)). The author shows the former to be correct, indicating that, in accordance with experience, a higher silicon content in eutectic Fe-C-Si melts promotes graphitization of the alloy. Application of the method to the Fe-C-P system explains various features of the phase diagram and microstructure. It shows why in low- or medium-silicon irons cementite and not graphite is the high-carbon phase, and contradicts the view of F. Neumann et al. (Ref.3) that phosphorus in grey iron is a graphitizing addition. The author notes that thermodynamic activity is convenient not only for determining the tendency of iron-carbon alloys to graphitization, but also for estimating other properties such as creep. His approach will provide a convenient bridge between thermodynamic and kinetic factors, metal physics and classical metallurgy.

There are 7 figures.

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Phase diagrams and thermodynamic-... S/126/62/013/002/012/019
E111/E135

ASSOCIATION: Vyssheye tekhnicheskoye uchilishche im.
N.E. Bauman
(Technical High School imeni N.E. Bauman)

SUBMITTED: May 5, 1961

Ref.3: Neumann F., Schenck H., Patterson W. Giesserei, 1960, 47,
No.2.

Ref.10: Iitaka I. Imono, 1959, 31, No.3.

Ref.11: Jass H., Hanemann H. Giesserei, 1938, 25,293.

Ref.12: Malinotchka Ya.N. Liteynoye proizvodstvo, 1957, No.10.

Card 3/4

ZHUKOV, A.A.

Effect of phosphorus on the graphitization of iron-carbon alloys and the structure of phosphide eutectics in cast iron. Fiz.met.i metalloved. 14 no.5:715-726 N '62. (MIRA 15:12)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche im. Baumana. (Cast iron--Metallography) (Eutectics)

ZHUKOV, A.A.

Profile on the thalweg adjacent to the Fe angle of the diagram of the state of iron-silicide and iron-graphite alloys. Zhur. fiz.khim. 36 no.8:1810-1812 Ag '62. (MIRA 15:8)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche imeni Baumana.
(Iron-silicon alloys) (Iron-graphite alloys)

ZHUKOV, A. A.

Some problems in the geometry of the phase diagrams of iron-carbon-chromium alloys. Zhur. fiz. khim. 36 no.12:2787-2790 D '62. (MIRA 16:1)

1. Moskovskoye vyssheye tekhnicheskoye uchilishche imeni Baumana.

(Iron-carbon-chromium alloys)

RUDNIK, V.Ya., kand.tekhn.nauk; ZHUKOV, A.A., inzh.; BURYAK, P.G., inzh.

Antivibration mountings for vibrational inertia screens. Prom. stroi.
40 no.2:37-38 '62. (MIRA 15:7)

(Screens (Mining)--Vibration)

S/182/63/000/001/006/012
A004/A126

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TITLE: Developing and studying an installation for hydraulically removing scale from heated blanks

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 1, 1963, 21 - 24

TEXT: The authors point out that, to improve the surface finish of die-forged parts, the hydraulic method of removing scale from the heated blanks is the most advanced one, and is used, apart from plants in the USA, England, Poland and other countries, also by machine-building and metallurgical plants of the Soviet Union, e.g. "Zaporozhstal", "Krasnyy Oktyabr", "Serp i molot" and other plants. This method consists in pointing a thin high-pressure water jet of some 100 - 180 atm at the blank heated up to forging temperature. Under the effect of the kinetic energy of the water and, simultaneously, of local cooling, the scale bursts and can be removed from the surface without the blank itself being cooled down. The two types of jet-forming devices, viz. spray nozzles and jet rings, are mentioned and functioning and operation of the latter is described

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Developing and studying an installation for...

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in detail. The authors comment on the mechanized installation for hydraulic scale removal that was developed at the Nevskiy mashinostroitel'nyy zavod (Nevskiy Machine-Building Plant) and give a brief description of the main units. There are 6 figures.

Card 2/2

ZHUKOV, A.A.

Intercrystalline segregation of silicon in Fe-C-Si alloys. Lit.
proizv. no.6:43-45 Je '63. (MIRA 16:7)

(Iron-silicon alloys--Metallography)

ZHUKOV, A.A. (Moskva)

Intercrystalline segregation of silicon in cast iron. Izv. AN
SSSR. Otd. tekhn. nauk. Mat. i gor. delo no.2:47-53 Mr-Ap '63.
(MIRA 16:10)

SHALASHOV, V.A. (Moskva); ZHUKOV, A.A., rukovoditel' raboty

Chromium distribution among phases of hypoeutectic cast iron.
Izv. AN SSSR. Otd. tekhn. nauk. Met. i gor. delo no.4:121-126

Л-Аг '63.

(MIRA 16:10)

ZALESKIY, V.I.; TSVENTARNYY, A.M.; KORNEYEV, D.M.; ZHUKOV, A.A.

Scale removal by hydraulic methods. Izv. vys. ucheb. zav.;
chern. met. 6 no.3:135-140 '63. (MIRA 16:5)

1. Moskovskiy institut stali i splavov.
(Metals—Cleaning)

ZHUKOV, A.A.; SHALASHOV, V.A.

Effect of chromium on the graphitization of malleable cast iron.
Fiz. met. i metalloved. 16 no.1:124-128 J1 '63. (MIRA 16:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut tekstil'nogo i
logkogo mashinostroyeniya.
(Cast iron--Metallurgy)