POGODIN-ALEKSEEV, G. I.

Obrabotka davleniem otlivok belogo chuguna. (Vestn. Mash., 1951, no. 4, p. 57-60)

(Pressure working of white pig-iron castings.)

DLC: TN4.V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

USSR/Engineering - Welding, Processes Aug 51

"On the Mechanism of Striking the Electric-Welding Arc," M. Ya. Broun, Engr, Prof G. I. Pogodin-Alekseyev

"Avtogen Delo" No 8, pp 16,17

Interprets development of elec arc in welding process as result of active role of thermal ionization in this process. Rapidly rising temp causes violent sublimation of metal from its surface, and gap between electrode and piece to be welded is filled with metal vapors, whose ionization potential is considerably lower than

200T52

USSR/Engineering - Welding, Processes (Contd) Aug 51

that of air components. Temp of vapors is high and possibility of their ionization is also high. Electrons emitted from cathode ionize metal vapors and provide for rapid development of arc.

200T52

POGODIN-ALEKSEYEV, G.I. (Prof)

Met. Review
1952

Q - Mechanical Properties
And Test Methods,
Deformation

179-Q. **The Effect of the Smoothness of the Working Surface on the Resistance to Rupture Caused by Single and Repeated Impact.** (In Russian.) G. I. Pogodin-Alekseev and A. V. Pamfilov. *Stanki i Instrument*, v. 22, Apr. 1951, p. 22-23.
See abstract from *Engineer's Digest*; item 677-Q, 1951. (Q6. ST)

POGODIN-ALEKSEYEV, G. I.

POGODIN-ALEKSEYEV, G. I. -- "INVESTIGATION OF THE STRENGTH, PLASTICITY, AND MALLEABILITY OF STEEL IN IMPACT TESTS." SUB 12 JUN 52, MOSCOW ORDER OF LABOR RED BANNER INST OF STEEL IMENI I. V. STALIN (DISSERTATION FOR THE DEGREE OF DOCTOR IN TECHNICAL SCIENCES)

SO: VECHERNAYA MOSKVA, JANUARY-DECEMBER 1952

[redacted], G. I.

Methods of testing welded joints and structures; textbook Moskva, Gos. nauchno -tekhn. izd-vo mashinostroit. lit-ry, 1952. 343 p. (53-36758)

TS227.P62

1. POGODIN-ALEKSEYEV, G. I., Prof.

2. USSR (600)

4. Steel--Testing

7. Effect of testing loads by single and multiple strokes on the resilient strength of steel, Vest. mash., 32, No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, April, 1953, Uncl.

POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk, professor; BOLKHOVITINOV, N.F., doktor tekhnicheskikh nauk, professor, retsenzent; ELANTER, M.Ye., doktor tekhnicheskikh nauk, professor, retsenzent; POPOVA, S.M., tekhnicheskiy redaktor.

[Structure and strength of metals and alloys; collection of scientific essays] Struktura i prochnost' metallov i splavov. Sbornik nauchnykh rabot. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, Vol. 5. 1953. 182 p. (MLRA 7:9)

(Metalwork) (Metals--Testing) (Metallography)

POGODIN-ALEKSEYEV, G.I.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 409 - I

BOOK

Call No.: TA460.P57

Author: POGODIN-ALEKSEYEV, G. I., Prof., Doc. of Tekh. Sci.

Full Title: PROPERTIES OF METALS SUBJECTED TO IMPACT LOADING

Transliterated Title: Svoystva metallov pri udarnom nagruzhenii

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Literature on Ferrous and Nonferrous Metallurgy

Date: 1953 No. pp.: 355 No. of copies: 7,000

Editorial Staff

Editor: None Tech. Ed.: None

Editor-in-Chief: None Appraiser: None

Text Data

Coverage: In this book existing methods of impact testing of metals are discussed. A number of new methods are described, particularly simple methods of construction of deformation diagrams and methods of determination of plastic and strength characteristics of metals subjected to impact loading. These methods are suitable for factory laboratories. Some metallurgical and design factors affecting the impact resilience of steel, and the influence of low temperature and high velocities of load application on the characteristics of steel are also discussed. In the introduction a historical outline of the

1/6 2

Svoystva metallov pri udarnom nagruzhenii

development of this branch of science can be found. Tables, diagrams, graphs, photos, etc.

This book is interesting as an up-to-date compilation of information on impact loading and testing of metals. In American technical literature this information will be found scattered in various books and periodicals.

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	1. Evaluation of existing methods of impact testing; 2. Characteristics of plasticity and flow limits at impact testing of unnotched test bars; 3. Computation of deformation diagrams for impact bending by the method of deformation characteristics; 5. Influence of the mass of a pendulum and the speed of its motion .	
Ch. II	Characteristics of Strength and the Law of Similarity in Impact Testing	53-83

2/62

POGODIN-ALEKSEYEV, I.

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B. T. R.
Vol. 3 No. 4
Apr. 1954
Metals-Heat Treatment

5322* Carburizing of Steel by Natural Gas. (Russian.) G
I. Pogodin-Alekseev and G. V. Zemskov. *Vestnik Mashino
stroenia*, v. 33, no. 9, Sept. 1953, p. 65-68.
Discusses composition of the gas and carburizing temperature
Graphs. 3 ref.

LASHKO, N.F.; LASHKO-AVAKYAN, S.V.; POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk, professor, redaktor; POPOVA, S.M., tekhnicheskiy redaktor

[Metallography of welding; some problems] Metallovedenie svarki; nekotorye voprosy. Pod red. G.I.Pogodina-Alekseeva. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroitel'noi lit-ry, 1954. 270 p. (MLRA 8:4)
(Welding) (Metallography)

POGODIN-ALEKSEYEV, G. I.

"Dynamic Properties of Steel," pp. 24/41 in Modern Methods of Heat Treating Steel by Com Inzhenera i Tekhnika imeni F E Dzerzhinskovo. Gosudarstvennoye Nauchno-Tekhnicheskoye Izdatel'stvo Mashinostroitel'noy Literatury, Moscow (1954) 404 pp.

Evaluation B-86350, 30 Jun 55

POGODIN-ALEKSEYEV, G. I. and ZHURAVLEV, S. V.

"The Effect of the Speed of Deformation on the Degree of the Plasticity Which has been Determined During Stretching," page 108 of the book "Problems on Strength and Deformation of Metals and Alloys," released by Moscow Engineer-Physics Inst., Mashgiz, 1954

TABCON D-342613, 24 Oct 55

POGODIN-ALEKSEYEV, G. I. and ZEISKOV, G. V.

"Basic Parameters of the Process of Gas Cementation," p 35 of the book "Problems on Strength and Deformation of Metals and Alloys," released by the Moscow Engineer-Physics Inst., Mashgiz, 1954.

TABCON D-342613, 24 Oct 1955

POGODIN-ALEKSEYEV, G. I.

"Cold Brittleness of Steel"
Tr. Vses. Nauch. -Inzh. o-va Metallurgov, 1, 1954, 67-88

A graphical method of tangents is applied for determining the brittleness tolerances. Two tangents drawn from the origin of coordinates to the continuous experimentally-obtained curve, $A/T = f(T)$ (impact work A as a function of the absolute temperature T), touch the curve in the maximum and minimum points of brittleness tolerances. (RZhEz, No 9, 1955)

SO: Sum-No 787, 12 Jan 56

Pogodin-Alekseev, G.I.

15

Basic parameters of the gas cementation process. G. V. Zemskov and G. I. Pogodin-Alekseev. *Sbornik Nauch. Robot Moskov. Tekh.-Fiz. Inst.* 1954, No. 8, 35–42; *Referat. Zhur., Khim.* 1955, Abstr. No. 59172.—The delivery speed effect of the cementing gas on the surface condition of the hardened layer is investigated. Local Dashavsk gas is used for cementation. It is found that the optimum speed of the passing gas sufficient to give 0.9–1% C to the cemented layer [illegible] gas is obtained by [illegible] the second period an alternate diffusion toward the inner layers takes place and the gas passing is necessary to supply the outer layers with the eutectoid amt. of C. The total gas amt. does not surpass the amt. for the single step optimum process. The two-step process shortens the time by 30–50%.

N. Vasiliff

1 45 2C

POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk, professor; ZHURAVLEV, S.V., inzhener.

Effect of the speed of deformation on the magnitude of plasticity characteristics determined by tension. Sbor.nauch.rab.MIFI no.8: 108-119 '54. (MLRA 9:3)

(Plasticity) (Metals--Testing)

POGODIN-ALEKSEYEV, G. I.

Pogodin-Alekseyev, G. I.	"Properties of Metals Under Impact Loading"	Moscow Higher Technical School imeni Bauman

BOLKHOVITINOV, Nikolay Feodoseyevich, professor, doktor tekhnicheskikh nauk; BOLKHOVITINOVA, Yelena Nikolayevna, dotsent, kandidat tekhnicheskikh nauk; KOLLI,A.Ya., inzhener, redaktor; VLADISLAVLEV, V.S., professor, retsenzent; POGODIN-ALEKSEYEV,G.I., professor, doktor tekhnicheskikh nauk, retsenzent; POPOVA,S.M., tekhnicheskiy redaktor

[Atlas of normal microstructures of metals and alloys] Atlas normal'nykh mikrostruktur metallov i splavov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroitel'noi lit-ry, 1955. 94 p. (MIRA 9:2)
(Metallography)

POGODIN-ALEKSEYEV, G. I.

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34892

Author: Pogodin-Alekseyev, G. I., Zhuravlev, S. V.

Institution: None

Title: Change in Plasticity of Metals During Transition to Brittle Breakdown Caused by Reduction in Temperature

Original Periodical: Collection: Metalloved. i termicheskaya obrabotka metallov, (MVTU, 41), Moscow, Mashgiz, 1955, 56-66

Abstract: A test for tension was performed on grades 20 and 40 steels on duralumi-num and on brass using "gagarinskiy" specimens 6 mm in diameter, with nominal length of 30 mm at temperatures of from +100 to -196°. It was established that the values of ψ and δ decrease during the transition to brittle breakdown, with the exception of brass, the plasticity of which increases all the way up to -196°. The elongation-temperature curves show the presence of a weakly pronounced maximum. The curve

Card 1/2

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34892

Abstract: for brass has a clearly pronounced rise in the range from -30 to -60°. Curves of the distribution of the permanent deformations at +100°, at temperatures corresponding to the maximum on the elongation-temperature curve, and at the temperatures of the transition to the brittle state are given. Reducing the test temperature in certain limits prior to the transition to the brittle state causes a reduction in the value of the plasticity limit ψ, a certain increase in deformation outside the neck, and a reduction in the volume of the neck. Reducing the temperature and increasing the speed of deformation causes also a reduction in the volume, participating in the localized plastic flow of the metal. The difference in the effect of increasing the speed of deformation and that of decreasing the temperature is caused by the drop in the plasticity limit with diminishing temperature and by a certain increase in the plasticity limit with increasing speed of deformation.

Card 2/2.

POGODIN-ALEKSEYEV, G. I.

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34898

Author: Pogodin-Alekseyev, G. I.

Institution: None

Title: On the Tendency of Metals to Cold Brittleness When in Static Tension

Original Periodical: Metallovedeniye i obrabotka metallov, 1955, No 2, 8-14

Abstract: At temperatures from -196 to +100° the change of the strength and plastic characteristics of grades 20 and 40 steel, duralumin, and brass were studied, after standard annealing for each grade, by means of the IM-4 machine using specimens of the "gagarinskiy" type. A considerable increase in the strength limit and in the yield limit was observed with decreasing temperature. A noticeable reduction in the local elongation and a growth in the uniform elongation is described for specimens made of 20 steel at temperatures below 0°, and analogous changes in plasticity are described for 40 steel and duralumin below

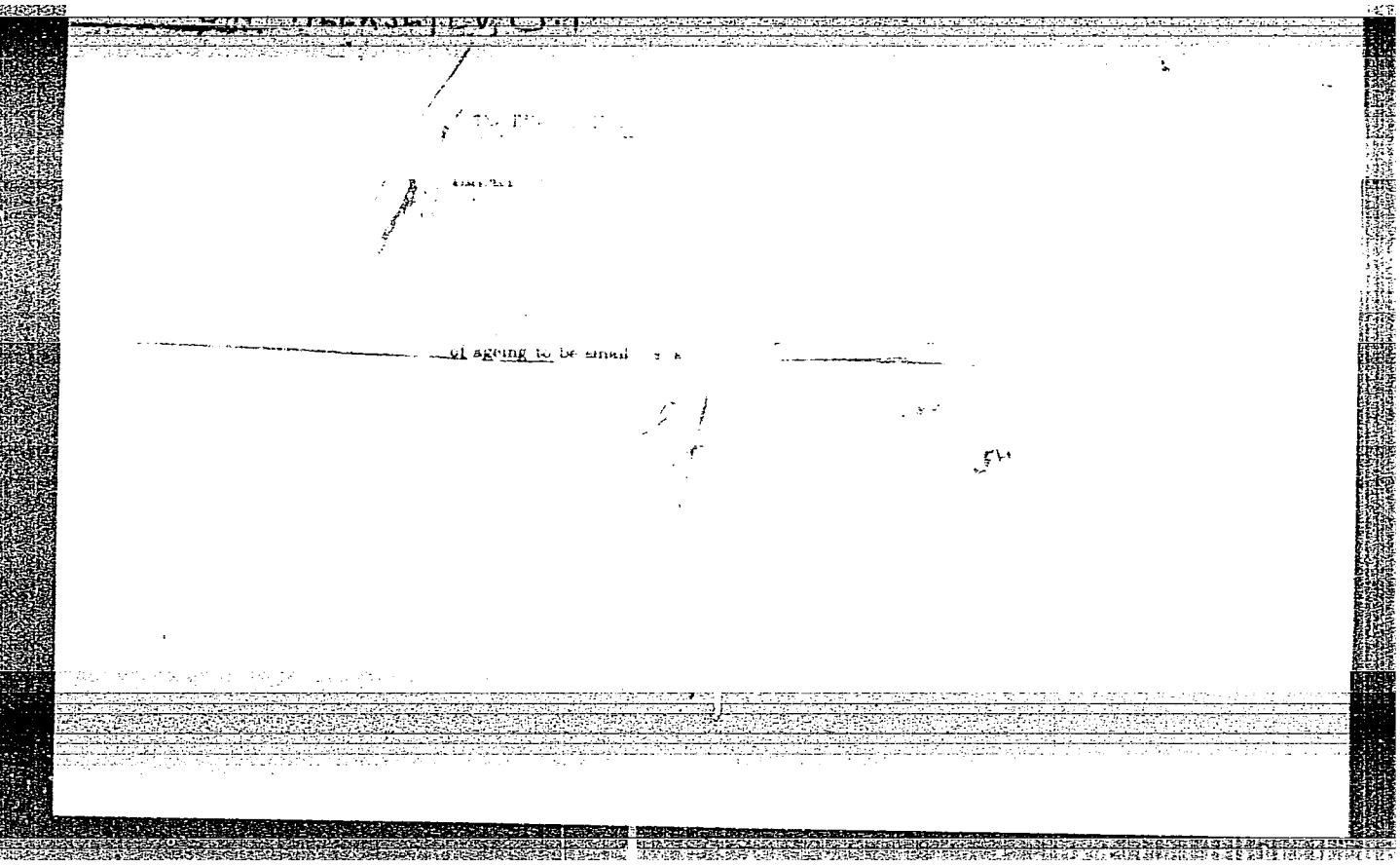
Card 1/2

USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds, E-9

Abst Journal: Referat Zhur - Fizika, No 12, 1956, 34898

Abstract: +20° and for brass in the range from -30 to -60°. It is suggested that the upper threshold of the cold brittleness is the temperature at which the concentrated plasticity starts decreasing, which is practically the same as the temperature at which the uniform plasticity begins to rise. This is confirmed by results of impact tests on the above-named steels. The lower threshold of cold brittleness was not reached at temperatures up to -196° (with the exception of the grade 40 steel). The transition intervals in duraluminum and brass are more extensive than those of ordinary cold-brittle metals. Overheating grade 20 steel makes it possible to shift considerably the transition interval toward increasing the temperature and to bring out the lower threshold of cold brittleness.

Card 2/2



POGODIN - ALEKSEYEV, G.I.

USSR/ Engineering - Electrodes

Card 1/1 Pub. 11 - 4/8

Authors : Shevchenko, G. D., and Pogodin-Alekseyev, G. I.

Title : Highly efficient SK-A1, and SK-A2 electrodes with an aluminum addition for welding of low-carbon steel

Periodical : Avtom. svar. 8/1, 39-48, Jan-Feb 1955

Abstract : The efficiency of the SK-A1, and SK-A2 electrodes in arc welding of low-carbon steel was investigated. A description is given of conducted experiments together with technical data on chemical composition of weld metals, electrode coatings, and the fusion and deposition coefficients. Four USSR references (1950-1952). Tables; graphs.

Institution : .....

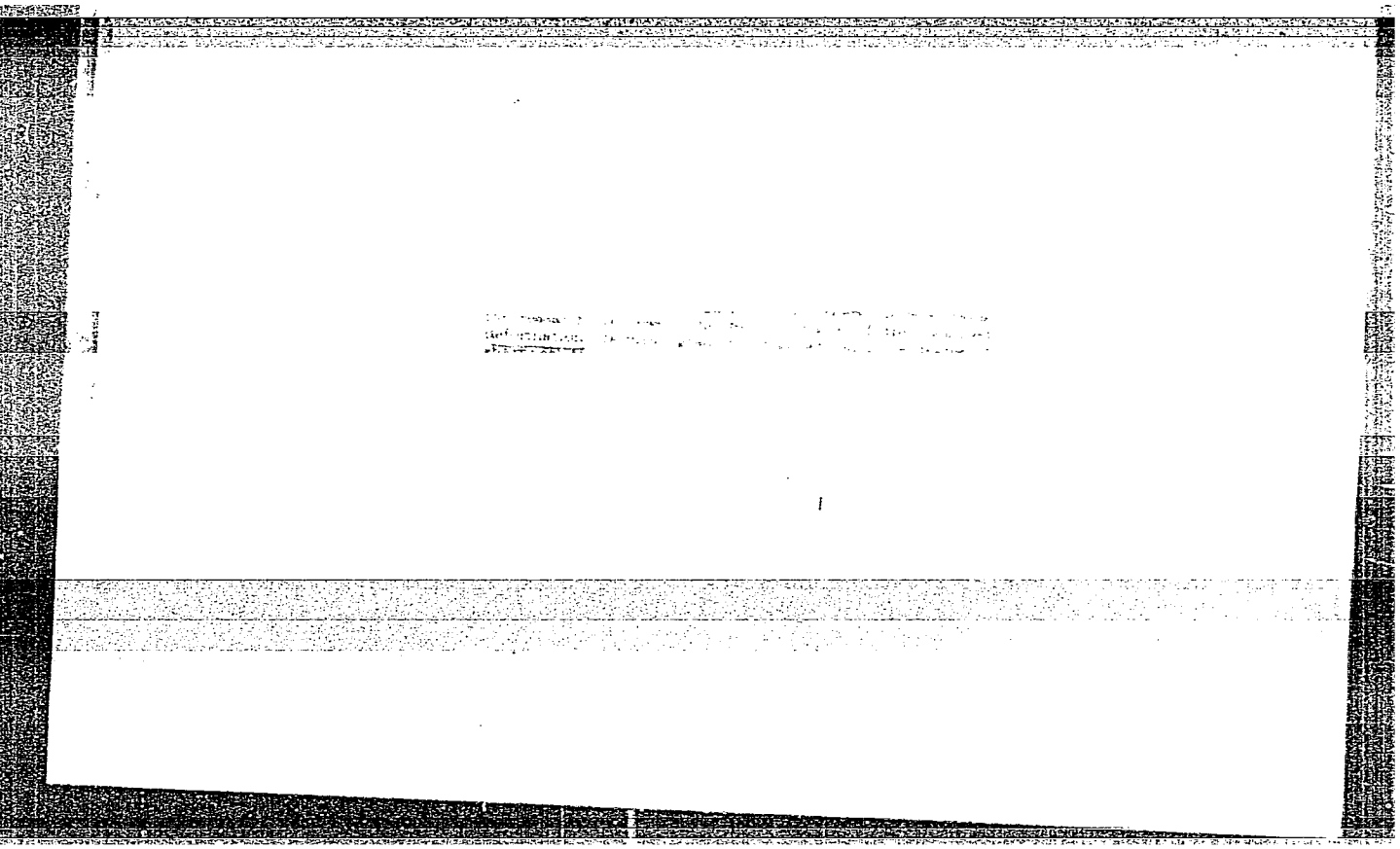
Submitted : August 1, 1954

POGODIN-ALEKSEYEV, G.I.

NC Influence of thermal treatment, straightening, and aging on brittleness of rail steel. G. I. Pogodin-Alekseev and N. S. Artemenko. *Stal'* 15, 455–8(1955).—Specimens cut from the heads of nails made of 2 heats of steel were impact tested at −196 to +20° in as-rolled state, after normalizing from 800°, and after oil quenching and drawing at 550°. As-rolled steel had a transition point at 0°, normalized at −80°, and the heat-treated one at −100°. Bending test specimens to the extent corresponding to that of a gag press and then testing them at low temp. showed that cold deformation fully eliminates the effect of the thermal treatment, the first few bends having the strongest effect. Aging normalized and straightened specimens at 250° for 2 hrs. lowered their impact strength still more. J. D. Gat

POGODIN-ALEKSEYEV, G.I.

Method of Evaluating the Embrittlement of Steel in Blue Brittleness



APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341520016-8"

POGODIN-ALEKSEYEV, G.I.; SERGIYEVSKAYA, T.V.

Effect of temper brittleness on the dynamic and static properties of 45G2 steel subjected to tension and bending... [Trudy] MVTU no.41:42-55 '55. (MLRA 9:10)

(Strains and stresses) (Steel--Brittleness)

POGODIN-ALEKSEYEV, G.I.; ZHURAVLEV, S.V.

Changes in the ductility of metals in the process of transition to brittle failure due to a decrease in temperature. [Trudy] MVTU no.41:56-66 '55. (MLRA 9:10)

(Steel--Testing)

POGODIN-ALEKSEYEV, G.I.; ARTAMONOV, B.A.

Method of measuring specimen deflection in drawing diagrams for dynamic bending. [Trudy] MVTU no.41:233-235 '55. (MLRA 9:10)

(Flexure)

POGODIN-ALEKSEYEV, Georgiy Ivanovich; GELLER, Yuliy Aleksandrovich; [redacted], Aleksandr Grigor'yevich; LAKHTIN, Yu.M., professor, doktor tekhnicheskikh nauk, retsenzent; BERNSHTEYN, M.L., dotsent kandidat tekhnicheskikh nauk, redaktor; PETROVA, I.A., izdatel'skiy redaktor; GLADKIKH, N.N., tekhnicheskiy redaktor

[Physical metallurgy; methods of analysis, laboratory work and problems] Metallovedenie; metody analiza, laboratornye raboty i zadachi. Izd. 2-oe, perer. Moskva, Gos. izd-vo obor. promyshl., 1956. 427 p. (MLRA 9:10)
(Physical metallurgy)

POGODIN-ALEKSEYEV, G.I.

Category : USSR/Solid State Physics - Mechanical Properties of Crystals and Polycrystalline Compounds E-9

Abs Jour : Ref Zhur - Fizika, No 2, 1957 No 3990

Author : Pogodin-Alekseyev, G.I.
Title : Impact Tests as a Method for Production Control and for Determination of the Properties of Materials

Orig Pub : Sovrem. metody ispytaniy materialov v mashinostroyenii. M., Mashgiz, 1956, 39-65

Abstract : Survey. Bibliography, 13 titles.

Card : 1/1

POGODIN-ALEKSEYEV, G.I.

AL'TGAUZEN, O.N., kandidat fiziko-matematicheskikh nauk; BERNSHTEYN, M.L., kandidat tekhnicheskikh nauk; BLANTER, M.Ye., doktor tekhnicheskikh nauk; BOKSHTEYN, S.Z., doktor tekhnicheskikh nauk; BOLKHOVITINOVA, Ye.N., kandidat tekhnicheskikh nauk; BORZDYKA, A.M., doktor tekhnicheskikh nauk; BUNIN, K.P., doktor tekhnicheskikh nauk; VINOGRAD, M.I., kandidat tekhnicheskikh nauk; VOLOVIK, B.Ye., doktor tekhnicheskikh nauk [deceased]; GAMOV, M.I., inzhener; GELLER, Yu.A., doktor tekhnicheskikh nauk; GORELIK, S.S., kandidat tekhnicheskikh nauk; GOL'DENBERG, A.A., kandidat tekhnicheskikh nauk; GOTLIB, L.I., kandidat tekhnicheskikh nauk; GRIGOROVICH, V.K., kandidat tekhnicheskikh nauk; GULYAYEV, B.B., doktor tekhnicheskikh nauk; DOVGALEVSKIY, Ya.M, kandidat tekhnicheskikh nauk; DUDOVTSEV, P.A., kandidat tekhnicheskikh nauk; KIDIN, I.N., doktor tekhnicheskikh nauk; KIPNIS, S.Kh., inzhener; KORITSKIY, V.G., kandidat tekhnicheskikh nauk; LANDA, A.F., doktor tekhnicheskikh nauk; LEYKIN, I.M., kandidat tekhnicheskikh nauk; LIVSHITS, L.S., kandidat tekhnicheskikh nauk; L'VOV, M.A., kandidat tekhnicheskikh nauk; MALYSHEV, K.A., kandidat tekhnicheskikh nauk; MEYERSON, G.A., doktor tekhnicheskikh nauk; MINKEVICH, A.N., kandidat tekhnicheskikh nauk; MOROZ, L.S., doktor tekhnicheskikh nauk; NATANSON, A.K., kandidat tekhnicheskikh nauk; NAKHIMOV, A.M., inzhener; NAKHIMOV, D.M., kandidat tekhnicheskikh nauk; POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk; POPOVA, N.M., kandidat tekhnicheskikh nauk; POPOV, A.A., kandidat tekhnicheskikh nauk; RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; ROGEL'BERG, I.L., kandidat tekhnicheskikh nauk;

(Continued on next card)

AL'TGAUZEN, O.N.----- (continued) Card 2.
SADOVSKIY, V.D., doktor tekhnicheskikh nauk; SALTYKOV, S.A., inzhener; SOBOLEV, N.D., kandidat tekhnicheskikh nauk; SOLODIKHIN, A.G., kandidat tekhnicheskikh nauk; UMANSKIY, Ya.S., kandidat tekhnicheskikh nauk; UTEVSKIY, L.M., kandidat tekhnicheskikh nauk; FRIDMAN, Ya.B., doktor tekhnicheskikh nauk; KHIMYSHIN, F.F., kandidat tekhnicheskikh nauk; KHRUSHCHEV, M.M., doktor tekhnicheskikh nauk; CHERNASHKIN, V.G., kandidat tekhnicheskikh nauk; SHAPIRO, M.M., inzhener; SHKOL'NIK, L.M., kandidat tekhnicheskikh nauk; SHRAYBER, D.S., kandidat tekhnicheskikh nauk; SHCHAPOV, N.P., doktor tekhnicheskikh nauk; GUDTSOV , N.T., akademik, redaktor; GORODIN, A.M. redaktor izdatel'stva; VAYNSHTEYN, Ye.B., tekhnicheskiy redaktor

[Physical metallurgy and the heat treatment of steel and iron; a reference book] Metallovedenie i termicheskaia obrabotka stali i chuguna; spravochnik. Pod red. N.T.Dudtsova, M.L.Bernshteina, A.G. Rakhshtadta. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1956. 1204 p. (MLRA 9:9)

1. Chlen -korrespondent Akademii nauk USSR (for Bunin)
(Steel--Heat treatment) (Iron--Heat treatment)
(Physical metallurgy)

SOV/137-57-1-1095

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 141 (USSR)

AUTHORS: Pogodin-Alekseyev, G. I.

TITLE: The Effects of Preliminary Overstressing and Shape of Machine Components on an Increase in Their Durability (Vliyaniye predvaritel'nogo perenapryazheniya i formy detaley mashin na povysheniye ikh dolgovechnosti)

PERIODICAL: V sb.: Povysheniye dolgovechnosti mashin. Moscow, Mashgiz, 1956, pp 21-40

ABSTRACT: Annealed specimens of steel 5, 10 mm in diameter, were subjected to preliminary overstressing (OS) at a stress of 30 kg/mm^2, which is 31.6% greater than the endurance limit (EL). Subsequent endurance testing under conditions of alternating flexure demonstrated that an OS exerted over 100,000 cycles raises the EL of specimens from 22.8 to 23.8 kg/mm^2, but that OS at 240,000 cycles lowers the EL to a value of 20.7 kg/mm^2. The strengthening effect of OS of short duration can be attributed to the phenomenon of crystalline displacements, i.e., to the effect of strain hardening. The experiments performed repudiate the opinion that any OS is harmful. In

The Effects of Preliminary Overstressing and Shape of Machine (cont.)

the course of repeated-impact tests it was established that, under certain conditions, OS of short duration tends to increase the durability of the specimen. In the case of the destruction of a specimen with a single blow, preliminary loading does not reduce the over-all plasticity and the total amount of work required to break the specimen and, in instances of small preliminary loading in conjunction with intermediate annealing, the plasticity and the value of a_k may even be increased. Investigations performed also dealt with the possibility of increasing the impact toughness of components (C) by means of increasing the volume of metal undergoing plastic deformation, i.e., the zone of deformation, the quality of the material remaining constant. It is recommended that the C's be given a shape approaching the shape of "equal bending resistance". An effective increase in the amount of work required to break a specimen is achieved by employing sectional C's in which the weakest section is farthest from the zone of impact. An investigation of the effect of notching and other forms of weakening of the C's demonstrates that a notch on the side under compression does not reduce the amount of work required to break the specimen and that this fact may, therefore, be employed to improve the working of certain C's. Any openings present affect the strength of the C's only if their axes are situated in the plane of action of the load; riveting tends to reduce the amount of work required to break a

specimen. In the case of machine parts operating under conditions of impact, it is recommended that the openings be situated perpendicularly to the direction of impact. Destruction of steel specimens with better surface finishes requires larger quantities of work. The effect of surface finish is more pronounced in hard steels. In preparing the surface of steel 5 it is recommended that a class-9 finish not be exceeded.

R. B.

SOV/124-57-4-5011

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 151 (USSR)

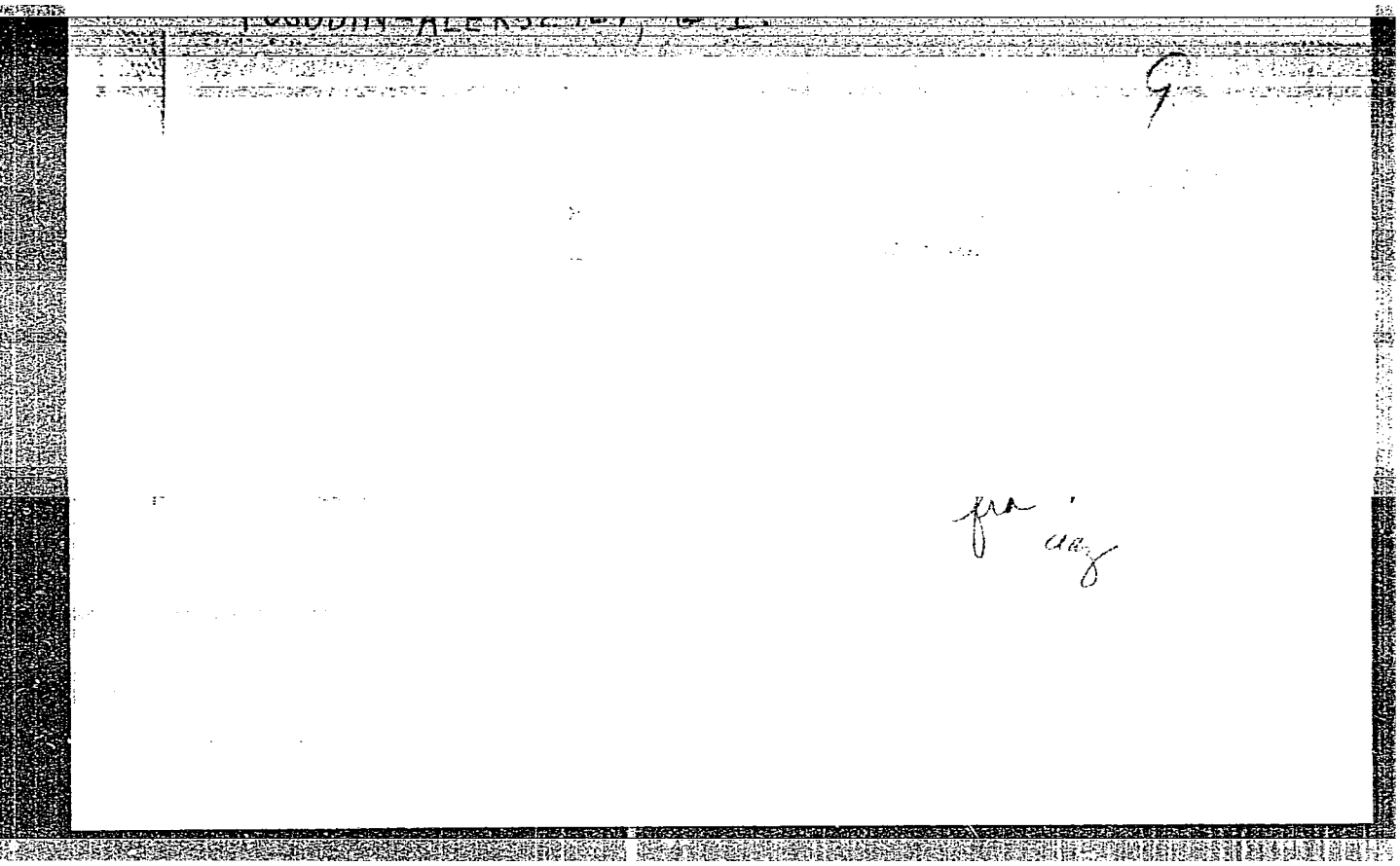
AUTHOR: Pogodin-Alekseyev, G. I.

TITLE: Impact Tests as a Method of Production Control and of the Determination of the Structural Properties of Materials (Udarnyye ispytaniya kak metod kontrolya produktsii i opredeleniya svoystv materialov)

PERIODICAL: V sb.: Sovrem. metody ispytaniy materialov v mashinostroyenii. Moscow, Mashgiz, 1956, pp 39-65

ABSTRACT: Bibliographic entry

Card 1/1



AID P - 4515

Subject : USSR/Engineering-Welding

Card 1/1 Pub. 107-a - 1/13

Authors : Pogodin-Alekseyev, G. I., Dr. Tech. Sci., Prof. and M. S. Savel'yeva, Eng.

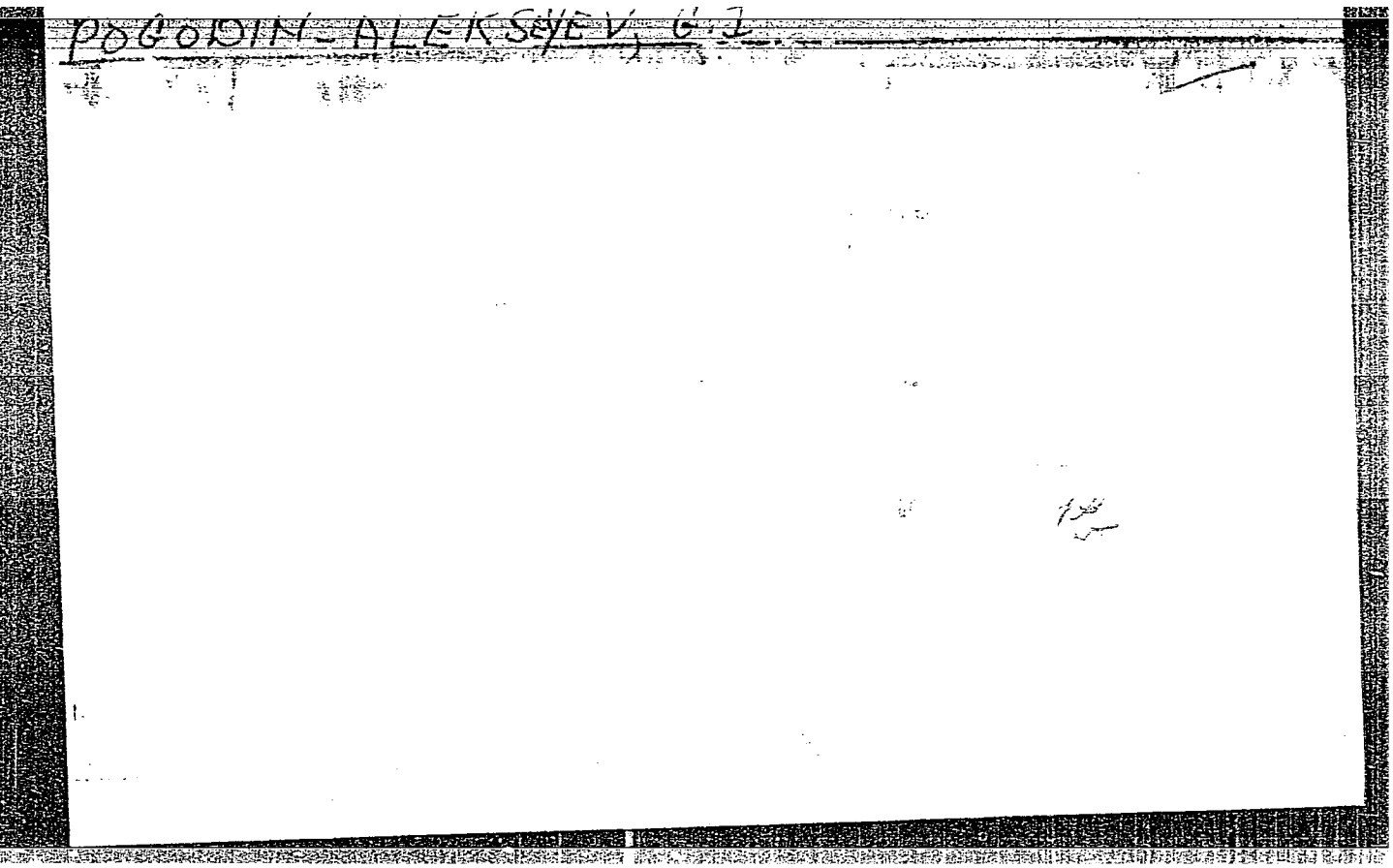
Title : Effect of Incomplete Fusion of Butt-seams of the 40Kh and 55-types of Steels on Mechanical Properties of Welded Joints.

Periodical : Svar. proizv., 2, 1-4, F 1956

Abstract : The authors describe the technique and results of the investigation of incompletely fused seams in 40Kh and 55-type carbon steels. The tensile strength and plastic characteristics of welded joints of annealed steel specimen are studied and appropriate deductions made. Five graphs, 1 table and 5 drawings. 2 Russian references (1935-1952).

Institution : None

Submitted : No date



POGODIN-ALEKSEYEV, G.I.

Method for determining localized and uniform plasticity in high-temperature tests. Zav.lab. 22 no.8:979-981 Ag '56.
(MLRA 9:11)

1. Moskovoskoye vysshoye tekhnicheskoye uchilishche imeni Baumana.
(Materials--Testing) (Plasticity)

POGODIN-ALEKSEYEV, G.I.; SOLOV'YEV, N.A.; BROYDO, A.S.

Effect of minor titanium and vanadium admixtures on the properties of zinc silumin. TSvet.met.29 no.1:66-72 Ja '56. (MLRA 9:6)
(Aluminum-zinc-silicon alloys)

POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk, professor;
VASIL'YEVA, A.G., inzhener.

The relation between grain size of microstructure, type of fracture, and resilience of steel. [Trudy] MVTU no.70:31-35 '56. (MLRA 9:9)

(Steel alloys--Metallography)

POGODIN-ALEKSEYEV, G.I., doktor tekhnicheskikh nauk, professor;
PETISOVA, M.M., kandidat tekhnicheskikh nauk.

Influence of chemical composition on the development of blue brittleness. [Trudy] MVTU no.70:36-50 '56 (MLRA 9:9)

(Steel alloys--Analysis)

POGODIN-ALEKSEYEV, G.I.

PHASE I BOOK EXPLOITATION 290

Pogodin-Alekseyev, G.I., Doctor of Technical Sciences, Professor, and Zemskov, G.V., Candidate of Technical Sciences, Docent

Gazovaya tsementatsiya stali (Gas Carburizing of Steel) Kiyev, Mashgiz, 1957. 111 p. 5,000 copies printed.

Reviewer: Lakhtin, Yu. M., Doctor of Technical Sciences. Professor; Ed.: Braun, M.P., Doctor of Technical Sciences, Professor; Ed. of Publishing House: Leuta, V.I., Engineer; Tech. Ed.: Rudenskiy, Ya. V.

PURPOSE: This book is intended for engineering and technical personnel of machine-building plants.

COVERAGE: This book explains the general mechanics of carbon diffusion in iron, as well as the principles of the steel carburizing process using artificially prepared gas mixtures and natural gas. The effect of basic factors of the carburizing process (temperature, time, velocity of the gas stream, etc.) on

Card 1/5 2

BOOK IN - ALEKSEYEV, G. I.

GINTSBURG, Yakov Solomonovich, kandidat tekhnicheskikh nauk; ODING, A., retsenzent; [redacted], doktor tekhnicheskikh nauk, professor, redaktor; LEYKINA, T.L., redaktor izdatel'stva; SOKOLOVA, L.V., tekhnicheskiy redaktor

[Relaxation of stresses in metals] Relaksatsiia napriazhenii v metalakh. Moskva, Gos.nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1957. 169 p. (MIRA 10:11)

1. Chlen-korrespondent Akademii nauk SSSR (for Oding)
(Metals) (Strains and stresses)

POGODIN-ALEKSEYEV, G.I.

137-58-5-10605

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 249 (USSR)

AUTHORS: Pogodin-Alekseyev, G. I.

TITLE: The Blue Brittleness of Steel and the Factors Influencing It (Sinelomkost' stali i faktory, na neye vliyayushchiye)

PERIODICAL: V sb.: Materialy nauchno-tekhn. konferentsii rabotnikov zavodsk. laboratoriy. Rostov-na-Donu, 1957, pp 17-21

ABSTRACT: An investigation has been made into the effect of strain rate, stress raisers, reduction in cross sections of smooth specimens, chemical composition, preheat treatment, length of holding at elevated test temperature, and rate of cooling of specimens tested at room temperature upon the temperature limits of the development of blue brittleness. A study is made of the types of fractures seen in specimens, the line of crack propagation, microstructure, hardness, and coercive force. The hypothesis is advanced that the significant drop in plasticity due to blue brittleness is related to the process of deformation or to processes of high-speed diffusion arising at elevated temperature at grain boundaries.

Card 1/1 1. Steel--Mechanical properties P. V.

137-58-6-12221

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 150 (USSR)

AUTHOR: Pogodin-Alekseyev G.I., Zhuravlev, S.V.

TITLE: The Effect of Rate of Deformation on the Size of the Work-hardened Layer in Blanking Operations (Vliyaniye skorosti deformirovaniya na velichinu naklepannogo sloya pri operatsiyakh vyrubki)

PERIODICAL: V sb.: Mashiny i tekhnol. obrabotki metallov davleniyem. (MVTU, 79). Moscow, Mashgiz, 1957, pp 103-109

ABSTRACT: In blanking (B) and punching, a deformed layer (DL) comes into being at the interface, which is capable of significantly affecting the subsequent working or technical properties of metal products or blanks. This is manifested both in the course of the processes of corrosion and in the appearance of large cracks in the work-hardened zone, particularly if blanking is followed by other forging operations: flanging, drawing, bending, etc. The results of an investigation into the influence of the speed of deformation (SD) on the magnitude of the DL in B are presented. The materials in the study were mild steel and Al. B was performed by a flat punch without a hold-down, with clearance of

Card 1/2

137-58-6-12221

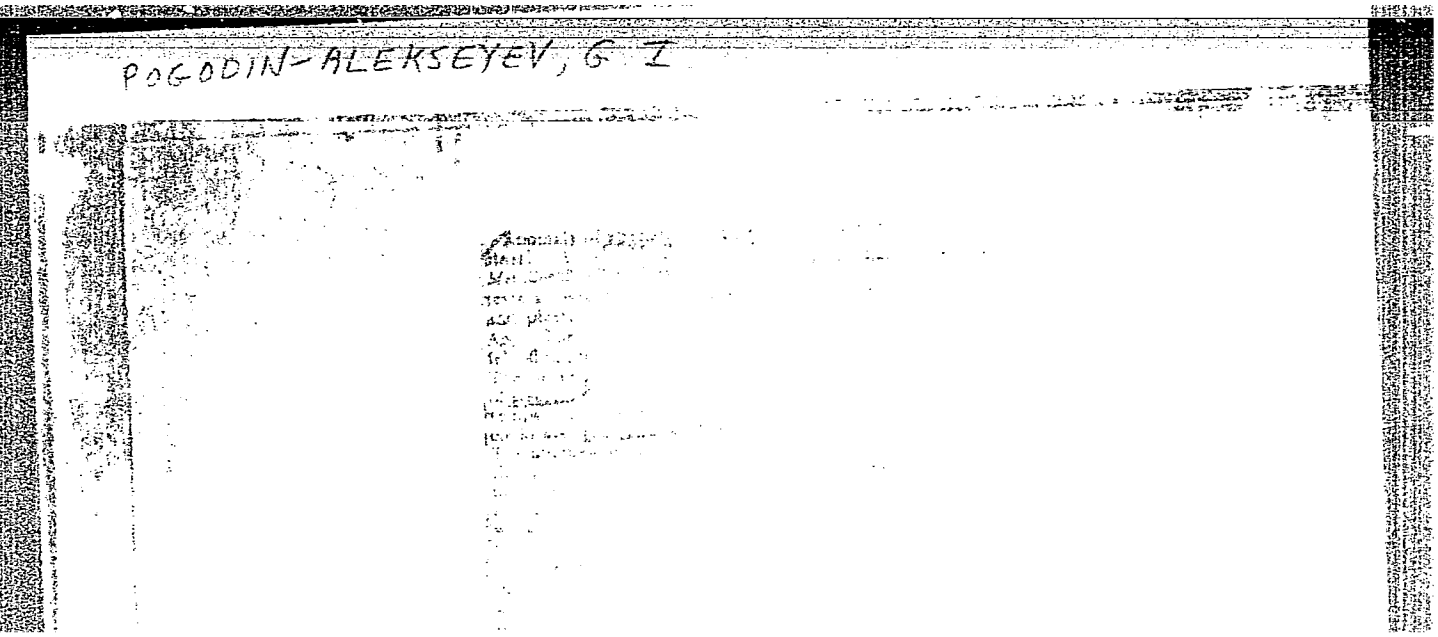
The Effect of Rate of Deformation (cont.)

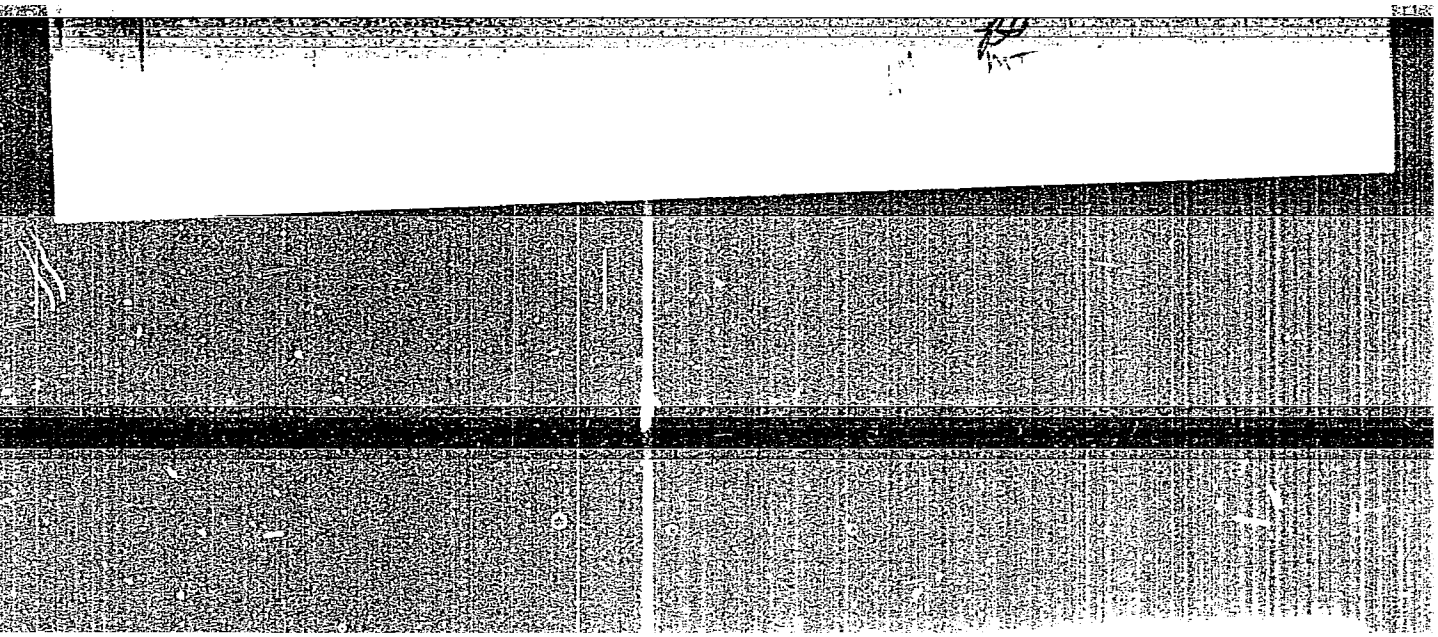
1.5, 6.0, and 12% of the thickness of the sheet, and at rates of $3.3 \cdot 10^{-3}$, 2.0· and $5.1 \cdot 10^{-3}$ mm/sec. The depth of the DL is determined by examination of the microstructure of the metal after a recrystallizing anneal at 700°C in the case of steel and at 600° in the case of Al. Data are adduced on the influence of RD on the depth of penetration of the DL at various clearances and velocities. It is noted that as SD increases, the depth of penetration of the DL into the steel diminishes, while both the steel and the Al reveal relatively high sensitivity to change in SD, which drops more sharply with increase in the clearance in the case of Al than in that of steel. At all speeds, the depth of the DL increases with larger clearances.

G.F.

1. Metals--Properties 2. Machine tools--Applications 3. Metals--Deformation

Card 2/2





APPROVED FOR RELEASE: 06/15/2000 CIA-RDP86-00513R001341520016-8"

135-3-2/17

TITLE: How Heat-Treatment Affects Mechanical Properties of Areas near Welds in Steel "55". (Vliyaniye termicheskoy obrabotki na mekhanicheskiye svoystva okoloshovnoy zony stali 55).

The heat treatment consisted of: 1) annealing at 600°C, and 2) "thermal improving" (oil quenching between 840-860°C and then annealing at 600°C). For measuring microhardness, the device "ПМТ-3" was used and for tension tests - the micro-machine "ВИАМ" which was described in the book "Mechanical Properties of Metals" by Ya.B. Fridman, (Oborongiz, 1952).

The "thermal improvement" made the structures of superheated zones completely uniform. They all had sorbitic structure with a hardness of 271-286 units. The weld metal was composed of sorbite-like perlite and ferrite having a hardness of 221 units. The "thermal improving" provides the highest values and the most suitable combinations of mechanical properties of all weld areas in steel "55".

The article contains 2 tables, 1 diagram, and 5 micro-photographs.

ASSOCIATION: Not listed.
PRESENTED BY:
SUBMITTED:
AVAILABLE: At the Library of Congress.
Card 2/2

POGODIN-ALEKSEYEV, G.I.

129-10-12/12

AUTHOR: Pogodin-Alekseyev, G.I., Starodubov, K.F. and Assonov, A.D.

TITLE: Scientific and technical conference on heat treatment of metals in Leipzig, East Germany. (Nauchno-tekhnicheskaya konferentsiya po termicheskoy obrabotke metallov v Leyptsige)

PERIODICAL: "Metallovedeniye i Obrabotka Metallov" (Metallurgy and Metal Treatment), 1957, No.10, pp.53-63 (U.S.S.R.)

ABSTRACT: This conference was held between May 21 and 22, 1957. Over 600 people participated, including some foreign delegates. The conference papers can be classified into 4 groups dealing with heat treatment, induction heating during hardening and gas hardening, heat treatment of components of various grades of steel and theoretical problems of heat treatment. Summaries are given of some of the papers read by East German as well as by guest delegates. There are 16 figures and graphs and 5 tables.

AVAILABLE: Library of Congress

Card 1/1

POGODIN-ALEKSEYEV, G.I.

136-12-14/18

AUTHORS: Solov'yev, N.A., Broydo, A.S., and Pogodin-Alekseyev, G.I.

TITLE: Effect of Mould Form on the Crystallization of Chromium Bronze Ingots (Vliyaniye formy izlozhnitsy na kristallizatsiyu slitkov khromistoy bronzy)

PERIODICAL: **Tsvetnyye** Metally, 1957, No.12, pp. 71-74 (USSR)

ABSTRACT: The authors outline effects (ingot porosity and chromium segregation) which led to difficulties at the "Krasnyy Vyborzhets" Works when making sheets of type Бр Х0,8 chromium bronze (0.5 - 0.9% Cr). They describe their laboratory experiments with 100-kg ingots cast in models of the works ingot moulds. The alloy was deoxidised with lithium and poured at about 1 200 °C. Three types of ingot mould, each type being cooled in several ways were used. The macro-structures of the ingots and chromium distribution were determined, the best results being obtained with a flat, horizontal mould with insulated walls and a heated top. This was confirmed by I.Ye. Sharov, Ya.F. Shabashov and N.N. Postnikov on 1 750-kg ingots at the "Krasnyy Vyborzhets" Works. Works data showed that with this type of mould, the yield in ingots was 80 and in sheet 50% of the charge weight, the corresponding figures for cylindrical moulds being 62-64 and 20-25%. The other ingot moulds used in the laboratory work were vertical cylindrical.

Card1/2

Effect of Mould Form on the Crystallization of Chromium Bronze Ingots 136-12-14/18

There are 4 figures.

AVAILABLE: Library of Congress

Card 2/2

AUTHOR: Pogodin-Alekseyev, G. I.

TITLE: For Further Development and Improvement of Procedures in Scientific Research (Za dal'neysheye razvitiye i sovershenstvovaniye metodiki nauchnykh issledovaniy)

PERIODICAL: Zavodskaya Laboratoriya, 1957, Vol. 23, No. 1, pp. 3-10 (U.S.S.R.)

ABSTRACT: The action planned is based on a decision of the 22nd Congress of the Communist Party of the USSR. The work is entrusted to 220,000 scientific workers, among whom are 77,000 with a Candidate degree and 10,000 with a doctor's degree, and tens of thousands of engineers. Defects in present methods are pointed out--lack of experimentation, publication of results of work, exchange of findings among scientists, etc. Scientists sometimes are unable to evaluate results because they do not understand certain phenomena. They do not always use the latest methods. The methodological basis of any scientific research must be the Marx-Leninist dialectical materialism. The research worker, however, must examine existing views and hypotheses. Borderline problems should be given particular attention. A research worker should know on what any science and practice are

Card 1/2

based and which points need checking. Theoretical cause and effect should be checked by experiment. Finally, the scientists should aid in popularizing their findings.

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE:

Card 2/2

SOV/124-58-11-13555

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 11, p 225 (USSR)

AUTHORS: Pogodin-Alekseyev, G. I., Zhuravlev, S. V.

TITLE: The Influence of the Strain Rate on the Magnitude of the Work-hardened Layer During Blanking Operations (Vliyaniye skorosti deformirovaniya na velichinu naklepannogo sloya pri operatsiyakh vyrubki)

PERIODICAL: V sb.: Mashiny i tekhnol. obrabotki metallov davleniyem. (MVTU, Nr 79). Moscow, Mashgiz, 1957, pp 103-109

ABSTRACT: The effect of the strain rate on the depth of the work-hardened layer was investigated on sheet material (low-alloy steel and aluminum). It is shown that with an increase in the strain rate the depth of the work-hardened layer decreases.

V. M. Kardonskiy

Card 1/1

25(5); 25(3) PHASE I BOOK EXPLOITATION SOV/2004

Pogodin-Alekseyev, Georgiy Ivanovich, Professor, Doctor of Technical Sciences

Dostizheniya nauki i tekhniki i peredovoy opyt v promyshlennosti i stroitel'stve. Vyp. 1: Vvodnaya lektsiya: Osnovnyye otrasli narodnogo khozyaystva. Direktivy partii i pravitel'stva po teknicheskomu progressu v toplivnoy, rudnoy i metallurgicheskoy promyshlennosti (Achievements of Science and Technology, and Progressive Methods in Industry and Building. Nr 1: Introductory Lecture: Basic Branches of the National Economy. Directives of the Party and Government on Technical Progress in Fuel, Mining, and Metallurgical Industries) Moscow, Izd-vo VPSh i AON pri TsK KPSS, 1958. 58 p. 22,000 copies printed. Errata slip inserted.

Sponsoring Agency: Kommunisticheskaya partiya Sovetskogo Soyuza. Tsentral'nyy Komitet. Vysshaya partiynaya shkola.

Ed.: G. V. Popova; Tech. Ed.: K. M. Naumov.

PURPOSE: This booklet is intended for students attending the Higher Party School under the Central Committee of the Communist Party of the Soviet Union.

Card 1/3

COVERAGE: The booklet describes basic production and engineering processes, present status of production, latest achievements of science and technology, and the paths of technological progress in various branches of Soviet industry. Party and State directives bearing on the development of fuel, mining, metallurgical, and construction industries are also discussed. No personalities are mentioned. There are no references.

TABLE OF CONTENTS:

Ch. I. Main Branches of the National Economy. Objective and Scope of the Course 3
Industry 6
Power 16
Construction, transport, and communications 19

Ch. II. Improvement in the Management of Industry and Construction. State Plans for Development of the National Economy 21
Measures taken by the Party and State to improve management of industry and construction 21
State plans for development of the national economy of the USSR 24

POGODIN-ALEKSEYEV, G.I., prof., doktor tekhn.nauk, red.; POPOVA, G.V., red.; NAUMOV, K.M., tekhn.red.

[Achievements in science and technology and the progressive practices of industry and construction] Dostizheniia nauki i tekhniki i peredovoi opyt v promyshlennosti i stroitel'stve. Moskva, Izd-vo VPSh i AON pri TsK KPSS. No.2. [Ferrous and nonferrous metallurgy] Chernaia i tsvetnaia metallurgiia. 1958. 157 p. (MIRA 13:6)

(Metallurgical plants--Equipment and supplies)
(Nonferrous metals--Metallurgy)

POGODIN-ALEKSEYEV, G.I.

POGODIN-ALEKSEYEV, G.I., prof., doktor tekhn.nauk, red.; YEGORKINA, L.I., red.; TIKHANOV, A.Ya., tekhn.red.

[Heat treatment and the strength of metals and alloys] Termicheskaia obrabotka i prochnost' metallov i splavov; sbornik statei. Pod red. G.I.Pogodina-Alekseeva. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1958. 177 p. (MIRA 11:3)

1. Moscow. Moskovskoye vysshaye tekhnicheskoye uchilishche.
(Metals--Heat treatment)

POGODIN-ALEKSEYEV, G I.

PHASE I BOOK EXPLOITATION 927

Mezhvuzovskaya konferentsiya po svarke, 1956

Sbornik dokladov...(Reports of the Interuniversity Conference on Welding, 1956) Moscow, Mashgiz, 1958. 266 p. 7,000 copies printed.

Sponsoring Agency: Moscow. Vyssheye tekhnicheskoye uchilishche.

Ed.: Nikolayev, G.A., Doctor of Technical Sciences, Professor; Ed. of Publishing House: Mezhova, V.A.; Tech. Ed.: Tekhanov, A.Ya.; Managing Ed. for Literature on Heavy Machine Building (Mashgiz): Golovin, S.Ya., Engineer.

PURPOSE: This book is intended for welding engineers and technical personnel of scientific research organizations.

Card 1/03

COVERAGE: This is a collection of technical papers and reports presented by the representatives of various educational, industrial, and research organizations at the 1956 welding conference. They deal with problems of strength of welded connections and structures, automatic arc and resistance welding of steels, and nonferrous metals and alloys. No personalities are mentioned. There are 109 references, 95 of which are Soviet, 12 English, and 2 German.

TABLE OF CONTENTS:

Nikolayev, G.A., Doctor of Technical Sciences, Professor.
Ways of Reducing of the Weight of Structures Through Application of Welding 5

Navrotskiy, D.I., Candidate of Technical Sciences, Docent.
Effect of Stress Concentration on the Strength of Welded Structures 21

Reports of the Interuniversity (Cont.)

Trufyakov, V.I., (Institute of Electric Welding imeni Ye.O. Paton). Consideration of the Effect of Residual Stresses in Experimental Determination of the Strength of Welded Connections 33

Pogodin-Alekseyev, G.I., Doctor of Technical Sciences, Professor. Microstructure and Mechanical Properties of 55 and 40 Kh Steel in Welded Zones in Automatic Welding 53

Mordvintseva, A.V., Candidate of Technical Sciences. Some Ways of Preventing Cold Cracks 61

Makarov, E.L., Engineer. Quantitative Method of Testing Steel and Electrode Materials for a Tendency to Form Cold Cracks in Zones Thermally Affected by Welding 76

Kuzmak, Ye.M., Doctor of Technical Sciences, Professor and Engineers: Karmazinov, N.P., and Koshelev, N.N. Investigation of Welded Connections in Special Steel Petroleum Equipment Using Radioactive Isotopes 85

POGODIN-ALEKSEYEV, G.I.

25(1) b 3 PHASE I BOOK EXPLOITATION SOV/1558

Moscow. Dom nauchno-tekhnicheskoy propagandy im. F.E. Dzerzhinskogo

Sovremennyye splavy i ikh termicheskaya obrabotka (Contemporary Alloys and Their Heat Treatment) Moscow, Mashgiz, 1958. 329 p. 12,000 copies printed.

Additional Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR.

Ed. (Title page): Yu. A. Geller, Doctor of Technical Sciences; Ed. (Inside book): V.V. Rzhavinskiy, Engineer; Tech. Ed.: B.I. Model'; Managing Ed. for Literatare on Metal Working and Tool Making; R.D. Beyzel'man, Engineer.

PURPOSE: The book is intended for engineering and technical personnel of heat-treatment shops and test laboratories of machine-building plants.

COVERAGE: This collection of 28 articles, compiled by 33 authors, aims to acquaint the reader with modern practice in the heat treatment of steels. The authors

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are primarily concerned with the development of various types of structural, tool, and heat-resistant steels and with the use of their alloying elements. Materials-handling equipment is described at some length. The treatment of alloys, particularly those of titanium, also comes within the scope of the collection. The book is thoroughly diagrammed, and a good deal of the material is shown in graphical form. Among the problems dealt with are the minimization of deformations, the introduction of the automatic control of heat-treating equipment, together with fully mechanized tool manufacture, and the optimum proportions of different alloying elements. There are numerous tables and drawings. Bibliographic listings placed at the end of chapters are predominantly Soviet. The articles comprising this collection are reports delivered at a conference held in the Scientific and Technical Propaganda House imeni F.E. Dzerzhinskiy in Moscow.

TABLE OF CONTENTS:

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Contemporary Alloys and Their Heat Treatment SOV/1558

Zav'yalov, A.S., L. Ya. Gol'dshteyn, and M.I. Senchenko. Nature of Temper Brittleness 5

Pogodin-Alekseyev, G.I., and M.M. Fetisova. Influence of Chemical Composition, Original Structure, and Test Conditions on the Temper Brittleness of Steel 23

Skotnikov, V.V. Intermediate Transformation of Austenite 40

Pogodina-Alekseyeva, K.M. Effect of Ultrasonic Waves on Transformations in Metals in the Solid State 48

Kontorovich, I. Ye. Principles of Alloying and New Types of Structural Steel 62

Meshcherinova, O.N. Structural Steels Alloyed with Boron 74

Tarasov, A.M. Study of Optimum Composition and of Some Peculiarities of the Heat Treatment of Boron-alloyed Case-hardened Structural Steel 80

Card 3/3

SOV/137-58-11-23463

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 232 (USSR)

AUTHORS: Pogodin-Alekseyev, G. I., Vasil'yeva, A. G.

TITLE: The Strength and Ductility of Steel in the Range of Recrystallization (Prochnost' i plastichnost' stali v intervale perekristallizatsii)

PERIODICAL: V sb.: Term. obrabotka i prochnost' metallov i splavov. Moscow, Mashgiz, 1958, pp 53-64

ABSTRACT: Tension tests were performed on specimens of steels St 20, 35, 45, and U8 at temperatures ranging from 650 to 900°C (in 10-30° increments) in order to refine existing data on the reduction of the plasticity of steel in the vicinity of critical points. Two procedures were employed for the heating of the specimens: a) Direct heating to the required temperature; b) heating to 980° followed by controlled cooling until the desired temperature was attained. Certain anomalies in the ductility of steel were observed in the range of recrystallization; in particular, a significant increase in magnitude of δ, followed by a sharp decrease. These phenomena are connected with processes of hardening and recrystallization of the austenite. Bibliography: 9 references.

T. F.

Card 1/1

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 231 (USSR) SOV/137-58-11-23455

AUTHORS: Pogodin-Alekseyev, G. I., Fetisova, M. M.

TITLE: Changes Occurring in the Microstructure, Fracture Texture, Hardness, and Coercive Force of Steel in the Blue Brittle Stage (Izmeneniye mikrostruktury, vida izloma, tverdosti i koertsitivnoy sily stali pri sinelomkosti)

PERIODICAL: V sb.: Term. obrabotka i prochnost' metallov i splavov. Moscow, Mashgiz, 1958, pp 115-124

ABSTRACT: Specimens of steel St 55 were employed in investigations which were carried out in order to determine the nature of the failure of steel, both in the ductile state and in a state of blue brittleness, by observing the appearance of the fracture and the microstructure. The investigations also dealt with changes occurring in the hardness, microhardness, and coercive force of specimens subjected to impact tests at temperatures of 16, 150, 300, 400, 475, 500, 525, 550, 575, and 600°C. It was established that at testing temperatures ranging from 100 to 400° the fibrous nature of the fracture changes from a coarse to a fine structure; at a temperature of 400°, crystalline

Card 1/2

Changes Occurring in the Microstructure, Fracture Texture, Hardness, and (cont.)

regions appear on the surface of the fracture and attain their maximum magnitude at 525-550°. The fracture acquires fibrous characteristics again as the temperature is increased further. The hardness of specimens subjected to impact tests at temperatures of blue brittleness was found to be somewhat greater than the hardness of specimens tested at lower temperatures. Measurements of the coercive force failed to reveal any difference between the ductile and brittle specimens.

T. F.

SOV/137-58-9-19947

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 265 (USSR)

AUTHORS: Pogodin-Alekseyev, G.I., Artemenko, N.S.

TITLE: Influence of Heat Treatment, Straightening, and Aging on the Cold Shortness of Bessemer Rail Steel (Vliyaniye termicheskoy obrabotki, pravki i stareniya na khladnolomkost' bessemerovskoy rel'sovoy stali)

PERIODICAL: V sb.: Metallovedeniye i term. obrabotka. Moscow, Metallurgizdat, 1958, pp 122-131

ABSTRACT: An investigation is made of the effect of heat treatment, straightening, and aging upon a_k at various temperatures in specimens cut from the heads of R-50 and R-43 rails made of Bessemer and open-hearth steels. It is established that normalization and refining increase a_k in the cold-shortness temperature interval, shifting the upper threshold of cold shortness from 0^o to -90^oC and the lower threshold from -100 to -160^o. The effects of straightening were studied in specimens work-hardened by 2, 4, and 8 bends in a die. Straightening raises the upper threshold of cold shortness by 20^o after 2 bends and by 60^o after 4, but does not affect its lower threshold; it also

Card 1/2

Influence of Heat Treatment, Straightening, and Aging (cont.)

reduces a_k in the cold-short temperature interval. The aging of heat-treated steel after 4 and 8 bends reduces the a_k in the ductile state and raises the cold-shortness threshold. Open-hearth steel is less prone to temper brittleness on aging than is Bessemer steel.

F.U.

1. Steel--Mechanical properties 2. Steel--Heat treatment 3. Steel--Aging
4. Steel--Test results 5. Tracks (Railroad)--Materials

SOV/137-58-11-22138

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 11, p 45 (USSR)

AUTHORS: Zaboleyev-Zotov, V. V., Pogodin-Alekseyev, G. I.

TITLE: Experimental Equipment for Crystallization of Alloys in an Ultrasonic Field (Eksperimental'naya ustanovka dlya kristallizatsii splavov v ul'trazvukovom pole)

PERIODICAL: V sb. Term. obrabotka i prochnost' metallov i splavov. Moscow, Mashgiz, 1958, pp 147-156

ABSTRACT: The proposed equipment consists of an HF tube oscillator (TO), a magnetostrictive ultrasonic projector (MP), special installations for melting and cooling the alloys, and recording and measuring instruments. The TO is designed to produce 5 kw in the coil of the magnetostrictive transformer. The TO circuit and a description thereof are presented. The MP (welded to one end of a 25-mm Ni tube of 1.5 mm wall thickness) is water-cooled, and this stabilizes its resonance frequency. The vibrations are introduced into the melt both from above and from beneath, the melt being in direct contact with the sealed end of the MP tube. Introduction of the ultrasonic vibrations through the upper surface of the melt is the

Card 1/2

Experimental Equipment for Crystallization of Alloys (cont.)

best procedure. The apparatus is used in experiments for 18 kc irradiation of 0.3 kg Pb-Sb (20% Sb), Zn-Sn (20% Sn), and Zn ingots with 2 kw power. Studies of the quality of the ultrasonically treated Me showed reduction in grain size of pure Me (Zn) and of the eutectics, also stratification of the Pb-Sb alloy. Sb crystals are seen in large quantities at the top of the ingot. Upon microinvestigation of test ingots of Zn and Zn-Sn, foreign bodies 0.01 to 0.1 mm in size are found. They are angular, ragged particles of Ni. The reason for the appearance of these particles is cavitational destruction of the facial surface of the MP tube.

A. R.

Card 2/2

SOV/137-59-2-3599

Translation from: Referativnyy zhurnal. Metallurgiya, 1959, Nr 2, p 185 (USSR)

AUTHOR: Pogodin-Alekseyev, G. I., Zhuravlev, S. V.

TITLE: On the Nature of the Deformation in the Yielding Region (K voprosu o prirode deformatsii na ploshchadke tekuchesti)

PERIODICAL: V sb.: Term. obrabotka i prochnost' metallov i splavov. Moscow, Mashgiz, 1958, pp 169-178

ABSTRACT: The authors examine the contemporary concepts on the nature of the deformation (D) in the yielding region (YR) and their experimental verification. It is pointed out that the "brittle-skeleton" theory cannot explain many phenomena such as the appearance of YR after recovery, the increase in σ_s upon a very small (0.0001%) increase in carbon content, etc. The latest investigations show that the process of plastic D in the YR consists predominantly of a rotation of one grain in relation to another by means of grain-boundary (GB) slip. A hypothesis is proposed that the hardenability of a metal changes with an increase in the elastoplastic D rate in different ways for the process of plastic yield through GB slip and for the crystallographic-shear process. At low D rates the predominant GB slip proves to be more advantageous

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On the Nature of the Deformation in the Yielding Region

energywise; at high rates, however, predominant crystallographic shear is more advantageous. The existence of D of a critical magnitude σ_{cr} is caused by the change in the predominant type of the course of the D process and is established by the point of intersection of the hardening curves corresponding to GB slip and to crystallographic shear. The value of σ_{cr} is different for various metals and depends on the temperature of the test, the rate of D, the chemical composition of the alloy, heat treatment, etc. The authors draw the conclusion that the phenomenom of the physical yield point of a metal must be considered a universal one.

L.G.

Bibliography: 45 references.

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POGODIN-ALEKSEYEV, G. I.

129-1-1/ 4

AUTHORS: V.V. **Zaboleyev**-Zotov, Engineer and Pogodin-Alekseyev, G.I., Doctor of Technical Sciences, Professor.

TITLE: Influence of Ultra-sonic Oscillations on the Formation of the Structure of Eutectic Alloys (Vliyaniye ul'trazvukovykh kolebaniy na formirovaniye struktury evtekticheskikh splavov)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, No.1, pp. 2 - 6 + 4 plates (USSR).

ABSTRACT: The authors investigated in detail alloys of the system Pb-Sb since, for the starting metals of these, an adequate number of reliable data are available on the influence of supersonics on the structure formation. Alloys of the systems Zn-Sn, Al-Si, Al-Sn were also investigated. The intensity of the ultra sound, the chemical composition of the alloys and the cooling conditions were the variable parameters. The source of the ultrasound was a standard nickel magnetostriction transducer and a steel half-wave concentrator was brazed on to the radiating surface. The active surface of the concentrator was introduced into the melt through a hole in the bottom of a cast iron crucible in which the alloys were molten and cooled. Melting was effected by means of an electric, tubular furnace which surrounded the crucible. The magnetostriction transducer was fed from an

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Influence of Ultrasonic Oscillations on the Formation of the Structure of Eutectic Alloys.

experimental high-frequency oscillator, described in an earlier paper of the author(Ref.8). The power of the electric oscillations fed to the transducer was about 4 kVA and the frequency of the ultrasonic oscillations was 22.5 and 24 kc/s. The alloys were produced from three, Grade-O, commercially-pure metals. The first series of experiments consisted of studying the influence of the chemical composition of the melt on the formation of the structure of the excess component under the effect of ultrasonics. The experiments comprised the systems Pb-Sn, Zn-Sn and the industrial aluminium alloy A2. The weights of the ingots were 400, 200 and 100 g, respectively. The chemical compositions were investigated for steps of 5% and for steps of 2% in the range approaching the eutectoidal one. Fig.1 (plate) indicates the structure of characteristic, transverse cuts; these show that the ultrasonics bring about a breaking-up of the dendritic structure of the excess component, the grains of which become finer. The second series of experiments were devoted to studying the

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influence of the duration of the effect of ultrasonics on the structure of the excessive component in the alloy Pb-Sb containing 25% Sb, whereby the cooling was effected in a cold crucible into which heated metal was poured from another crucible; in a hot crucible in air; in a crucible placed into an open furnace, and in a crucible placed closely to a cylindrical screen of asbestos sheet. Fig.3 (plate) shows clearly that the limit of breaking-up the grain into finer ones sets in for Sb at a low intensity of the ultrasonics. Fig.4, relating to the eutectic of the Pb-Sb alloy (25% Sb) at various cooling conditions, shows that the conditions of cooling are almost without influence on the structure of the eutectic in the case of absence of ultrasonics. However, the effect of the ultrasonics on the structure of the eutectic is that, at first, it becomes finer and, later on, coagulation of the Sb grains takes place and the structure becomes somewhat coarser. The experimental results confirm the considerable complexity of the kinetics of the effect of ultrasonics on the formation of the structure of eutectic alloys. To obtain more

Card3/5 information of the mechanism of these phenomena, the interaction

Influence of Ultrasonic Oscillations on the Formation of the Structure of Eutectic Alloys.

was studied of the liquid, metallic melt and of the solid, metallic phase, and also of the non-metallic phase for melts subjected to ultrasonics. In addition to oscillatory movement, ultrasonics of high intensity bring about intensive cavitation phenomena, intensive displacement of the melt due to the non-uniformity of the acoustic field, etc. The results of L. Bergman [Ref.10] and of the authors [Ref.11] indicate that cavitation bubbles form most easily at the surface of diffusion and, in the first instance, on the radiating surface and surfaces located near to it, and that cavitational micro-explosions deform the surface of the solid phase, bringing about a loosening and also distortion of the crystal lattice. A characteristic feature is the existence of a wetting process in the ultrasonic field which is not instantaneous but requires a certain "incubation period". Therefore, if a solid phase is present in a melt located inside an ultrasonic field of a high intensity, cavitational "preparation" and wetting takes place of the surface of this phase of the melt. This is followed by dispersion and uniform distribution of dispersed particles throughout the volume of the melt. The growth of the crystals

POGODIN-ALEKSEYEV, G.I.

AUTHORS: Pogodin-Alekseyev, G.I. and Savel'yeva, M.S. 125-1-6/15

TITLE: Mechanical Properties of Zones Adjacent to Seams in the Automatic Welding of Steel 55 (Mekhanicheskiye svoystva okoloshovnoy zony stali 55 pri avtomaticheskoy svarke)

PERIODICAL: Avtomaticheskaya Svarka, 1958, # 1, pp 37 - 42 (USSR)

ABSTRACT: At VIAM (ВИАМ), the authors designed a micro-machine used for testing the tensile strength of cylindric samples with a diameter of 0.8 - 1.2 mm and a five-fold length of the working piece as well as compression and bending tests. The VIAM micro-machine model (РФ-2), is shown in figure 1. This machine can be hand-operated or powered by a 50-100 watt motor with a reductor. The error usually does not exceed 1.6% with regard to the characteristics of strength and 2.5% for characteristics of plasticity. This exceeds by 2-2.5 times the magnitude of error of usual tensile testing machines for 10 mm samples. The authors investigated the mechanical properties of the welded seams of medium carbon steel 55, carried out by automatic welding, with СВ-10ГС wires, a 440-460 amp current, and 27 - 30 v. arc voltage. Table 2 contains figures relating to micro-mechanical properties and micro-strength of the welded seams of steel 55. It is proved in this article that micro-mechanical tests can be utilized to

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Mechanical Properties of Zones Adjacent to Seams in the Automatic Welding of Steel 55

evaluate the qualities of various sections of the zones adjacent to seams in automatic welding.
There are 2 tables and 7 figures.

ASSOCIATION: MVTU imeni N.E. Bauman (MVTU imeni N.E. Baumana)

SUBMITTED: 25 October 1956.

AVAILABLE: Library of Congress

Card 2/2

SOV/137-59-12-27194

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 12, p 204 (USSR)

AUTHORS: Pogodin-Alekseyev, G.I., Sergiyevskaya, T.V.

TITLE: The Effect of the Initial Microstructure on the Shift of Critical Cold Brittleness Temperatures of "45G2" Grade Steel During the Development of Reversible Tempering Brittleness

PERIODICAL: Tr. Sektsii metalloved. i term. obrabotki metallov. Tsentr. pravl. Nauchno-tekhn. o-va mashinostroit. prom-sti, 1958, Nr 1, pp 43 - 56

ABSTRACT: "45G2" grade steel specimens containing (in %): C 0.5, Si 0.37, Mn 1.43, S 0.025, P 0.03, Cr 0.04, Ni 0.1, were investigated after tempering, being in a ductile state that arose after a speeded-up cooling from 650°C, and in a state of tempering brittleness arising after a secondary tempering at 550°C and water cooling of ductile specimens. The development of tempering brittleness was evaluated from changes in the impact rupture and from the percentage of ductile zone in the fracture of specimens as well as from the magnitude of shift of the critical cold brittleness temperatures. The authors investigated decomposition products of austenite in "45G2" grade steel such as martensite,

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Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 10, p 92 (USSR)

AUTHORS: Zaboleyev-Zotov, V.V., Pogodin-Alekseyev, G.I.

TITLE: Investigations Into the Effect of Sonic and Ultrasonic Oscillations on Diffusion Processes of High-Melting Components in Metal Smelts

PERIODICAL: Tr. Sektsii metalloved. i term. obrabotki metallov. Tsentr. pravl. Nauchno-tekhn. o-va mashinostroit. prom-sti, 1958, Nr 1, pp 171 - 184

ABSTRACT: The author studied the mechanism of diffusion processes under the effect of high-power ultrasonic oscillations. A special device was designed consisting of a generator of high-frequency electrical oscillations of 5 kva power, a special tubular magnetostriction transformer to convert electric into ultrasonic oscillations, and a furnace for smelting and superheating metal and alloys-solvents up to the required temperature. It was stated that by treating the smelt with intensive elastic ultrasonic or sonic frequency oscillations, the diffusion rate of various high-melting and difficultly soluble elements in the smelt could be increased several

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Investigations Into the Effect of Sonic and Ultrasonic Oscillations on Diffusion Processes of High-Melting Components in Metal Smelts

times. The elements to be dissolved must be applied to the emitting surface of the transformer. Most intensive dissolving can be expected if the density of the soluble particles and the smelt are very different.

G.S.

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POGODIN-ALEKSEYEV, G.I.

125-58-5-9/13

AUTHORS: Leskov, G.I., and Pogodin-Alekseyev, G.I.

TITLE: The Thermic Theory of the Electric Arc (Termicheskaya teoriya elektricheskoy dugi)

PERIODICAL: Avtomaticheskaya Svarka, 1958, Nr 5 (62), pp 72-82 (USSR)

ABSTRACT: This is a theoretic discussion of the physical phenomena in the separate sections of the arc between electrodes - the cathode zone, the anode zone, and the arc proper. The theories suggested thus far (by Saga, Khrenov, Rabkin, and others) are discussed. The authors present their own explanations of the phenomena in the anode zone of which little is known.
There are 3 figures and 13 references, 11 of which are Soviet and 2 German.

ASSOCIATION: MVTU imeni Bauman

SUBMITTED: August 25, 1957

AVAILABLE: Library of Congress

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SOV-129-58-6-4/17

AUTHOR: ~~Pogodin-Alekseyev, G.~~ I. (Dr.Tech.Sci.Prof.)

TITLE: Influence of Ultrasonics on the Diffusion Processes of Steels and Alloys at Elevated Temperatures (Vliyaniye ul'trazvuka na diffuzionnyye protsessy v stalyakh i splavakh pri povyshennykh temperaturakh)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 6, pp 14-17 (USSR)

ABSTRACT: In earlier work of the author and his team it was shown that ultrasonics accelerate the process of dispersion hardening of light alloys at room and slightly higher temperatures (up to 130°C). In this paper the author aimed at studying the influence of supersonics on the diffusion processes in heavier alloys at more elevated temperatures (700-1000°C). For this purpose, it was necessary to use more powerful sources of ultrasonics, i.e. a magnetostriction transducer of up to 5 kVA with a frequency of 21.5 kc/sec, described in an earlier paper (Ref.3). Since nickel magnetostriction elements are stable in operation

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Influence of Ultrasonics on the Diffusion Processes of Steels and Alloys at Elevated Temperatures.

only at relatively low temperatures, these elements were placed into a tank and intensively cooled with flowing water. The ultrasonics were transmitted by means of a steel waveguide, which was soldered on to the magneto-striction packet. The other end of the waveguide was located in the active cavity of the electric furnace and carried the small bath with the molten metal or the carburizer. The following were studied: carburization in a solid carburizer of Armco iron and the steel 12KhN3A; dispersion hardening of a nimonic type alloy. The equipment used and the results are briefly described. The results show that ultrasonics are undoubtedly effective from the point of view of accelerating the processes of ageing and thermo-diffusion saturation of the surface of the steel with carbon and other elements. The positive influence of the ultrasonic is attributed to the periodical changes in the parameters of the alloy lattice which facilitated diffusion processes

SOV-129-58-6-4/17

Influence of Ultrasonics on the Diffusion Processes of Steels and Alloys at Elevated Temperatures.

(saturation of the matrix or separation of excess phases). There are 6 figures, 2 tables and 3 Soviet references.

ASSOCIATION: MVTU imeni Bayman .

1. Alloys - Diffusion 2. Alloys - Temperature effects
3. Ultrasonics - Applications

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SOV-128-58-7-10/20

AUTHORS: Pogodin-Alekseyev, G.I., Doctor of Technical Sciences, and Zaboleyev-Zotov, V.V., Engineer

TITLE: New Method of Preparing Alloys (Novyy sposob prigotovleniya metallicheskikh splavov)

PERIODICAL: Liteynoye proizvodstvo, 1958, Nr 7, pp 25-26 (USSR)

ABSTRACT: The authors suggest a new method of preparing metal alloys, consisting of adding the main alloy component into liquid metal in the form of powder and applying sonic or ultrasonic oscillations, or other means of oscillation, for uniform distribution of the alloy powder within the heat. Experiments were performed with tungsten carbide in lead. The design of the laboratory device employed in the experiments is described and illustrated by a diagram. A bar of the alloy element soldered to the sound wave source crumbled and gave results similar to the addition of the element in powder form. This method

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makes possible the production of alloys from components which do not form liquid solutions with each other, and enables the casting of complex shaped parts. There is 1 diagram and 1 microphotograph.

1. Alloys--Preparation 2. Alloys--Test methods

POGODIN-ALEKSEYEV, G. I.

AUTHORS: Pogodina-Alekseyeva, K. M., Pogodin-Alekseyev, G. I. 32-2-28/60

TITLE: The Brittleness of Steel Produced by Testing Processes and the Methods for its Determination (Khrupkost' stali, vyzvannaya protsessom ispytaniya, i metodika yeye vyyavleniya).

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol. 24, Nr 2, pp. 198-201 (USSR).

ABSTRACT: A typical phenomenon of embrittlement caused by testing processes is represented by the blue shortness of steel, as a result of which the flexure strength passes through a minimum at 540° C, but increases again with further heating. The obtained values of flexure strength are represented graphically. It is near at hand to consider this phenomenon a result of the structural modifications of the steel caused by temperature changes. From the experimental results it is found, however, that this is not the case, because of the fact, that the experimental samples, which were kept at a corresponding temperature during 1 hour, showed no modification after cooling down to room temperature. Experiments proceeding from the assumption of a diffusion process, that it is say of an existing time effect, furnished the same result. For the purpose

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The Brittleness of Steel Produced by Testing Processes and the Methods for its Determination. 32-2-28/60

of clarifying the embrittlement phenomena experiments were also made investigating the cold shortness of steel. After all investigations having had no positive result the plastic deformation occuring in the testing process was investigated and it was found, that the blue shortness of steel represents a variety of its aging by deformation. The temperature intervals of the embrittlement of steel were investigated and the results are represented graphically. A number of proposals for further investigations for the purpose of clarifying the embrittlement of steel are given, e.g. for the determination of the problem, whether the cause is represented by the deformation process, or by the preceding structural changes. There are 5 figures.

AVAILABLE: Library of Congress

1. Steel-Temperature factors 2. Steel-Test methods 3. Steel-Embrittlement

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BONDAREV, Yu.Ye.; LIKHAREV, K.K.; POGODIN-ALEKSEYEV, G.I., prof.

Reducing the friction of end plates during compression of cylindrical test specimens. Zav. lab. 24 no.5:655 '58. (MIRA 11:6)

1. Zapadno-Sibirskiy filial Akademii nauk SSSR (for Bondarev).
2. Moskovskoye Vyssheye tekhnicheskoye uchilishche im. N.E. Baumana (for Likharev).

(Friction)

SOV/32-24-11-23/37

14(11), 7(6)

AUTHORS: Pogodin-Alekseyev, G. I., Vasil'yeva, A. G.

TITLE: Methods of Determining Localized and Uniform Plasticity in Extension (O metodike opredeleniya lokalizovannoy i ravnomernoy plastichnosti pri rastyazhenii)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 11, pp 1394-1395 (USSR)

ABSTRACT: One of the most common methods of measuring plasticity is the method of applying graduation grids, which was developed best by T. K. Zilova and Ya. B. Fridman. In some cases, however, as e. g. at high temperatures, this method cannot be applied. One of the authors of the study under review had already suggested (Ref 1) a simple method of determining plasticity under any static testing conditions including high temperatures. This method consists of measuring a graduation on the sample, which was applied after testing, or of measuring the diameter only of various cross-sections of the sample (after testing) at certain distances from the point of failure. In order to plot the diagrams of distribution of plasticity on the sample before testing, the initial length of each segment between the

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Methods of Determining Localized and Uniform Plasticity in Extension

lines of calibration of the neighboring cross-sections is computed. The diameter is determined by means of an equation. This method was verified with samples of low-carbon plastic steel 20 of a diameter of 6 mm and a length of 30 mm. The lines of calibration (0.1 mm) were applied by means of a graduating machine in intervals of 2 mm. Measuring was carried out by means of a microscope. It is noted that this method of computation facilitates an exact estimation of the distribution of plastic deformation in the sample and that the maximum of plasticity can be observed very accurately.
There are 1 figure, 2 tables, and 1 Soviet reference.

POGODIN-ALEKSEYEV, Georgiy Ivanovich, Ed.

Spravochik Po Mashinistroitel'nym Materialam. Moskva, Mashgiz, 1959-
v. Illus., diagrs., graphs, tables.
Includes Bibliographies.
Contents: ; v.2-Tsvetnyye
Metally I Ikh Splavy