"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A. B.

CHELYUSTKIN, A., referent.

Instrument for recording drafts in blooming mills (from "Iron and Steel Engineer," no.1:1957). Stal' 17 no.12:1111 D '57. (MIRA 11:1)
(Rolling mills) (Recording instruments)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B., inzh.

Automatic control of continuous production lines used for finishing steel strips. Biul. TSNIICHM no.21:21-33 '57. (MIRA 11:5)
(Automatic control) (Steel industry)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

BEL'SKIY, B.E. [deceased]; BUR'YANOV, V.F.; VASIL'YEV, Ye.P.; VITKINA, E.I.: GALLAY, Ya.S.; LEVIN, G.I.; MATVEYEV, Yu.M.; CHELYUSTKIN, A.B.; ROKOTYAN, Ye.S., red.; ISTOMIN, A.B., red.; GRUZIN, V.I., red.; NEPOMNYASHCHIY, N.I., red. izd-va; KARASEV, A.I., tekhn. red.

[Ferrous metallurgy in capitalistic countries] Chernaia metallurgiia kapitalisticheskikh stran. Pt.4. [Rolling mill production] Prokatnoe i trubnoe proizvodstvo. Bel'skii, B.E. and others. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii. 1958. 627 p. (MIRA 11:7)

1. Moscow. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Forging) (Rolling (Metalwork)) (Pipe, Steel)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A. B.

"Continuous Measurement of Metal in Process of Rolling Mille."

reports presented at 13th Annual Instruments and Automation Exhibit and Conference, Philadelphia, 15-19 Sep 58.

Comments: B-3,115,266

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

SOV/112-59-17-36917

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 17, p 160 (USSR)

AUTHOR: Chelyustkin, A.B.

TITLE: Automatic Regulation of Dimensions of Rolled Metal

PERIODICAL: V sb.: Avtomat. upravleniye i vychisl. tekhn. Moscow, Mashgiz, 1958, pp 340-361

ABSTRACT: An automatic regulation system of band thickness on a continuous hot rolling mill, is briefly described, which operates by the temperature of the rolled metal. The servo-mechanism of clamping screws, the circuit of the temperature measurement along the band length, the proportioning unit, the circuit of limitation of the charge of the stand and the adjustment of the mill for the desired thickness, are discussed. The process of self-adjustment is explained and the necessity of thickness regulation on continuous cold rolling mills is substantiated. The circuits of automatic thickness regulation on cold rolling mills with a thickness gauge and with the computation of the gap between the rolls, are briefly described, as well as a computer applied for the thickness regulations in two stands. There are 3 illustrations.

N.M.F.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B.

AUTHOR: None Given 30-58-4-37/44

TITLE: Dissertations (Dissertatsii). Department of Technical Sciences (Otedeleniye tekhnicheskikh nauk). July-December 1957 (Iyul'-Dekabr' 1957 g.)

PERIODICAL: Vestnik Akademii Nauk SSSR, 1958, Nr 4, pp. 123-123 (USSR)

ABSTRACT: 1) At the Institute of Automation and Remote Control (Institut avtomatiki i telemekhaniki) the following dissertations for the degree of Candidate of Technical Sciences were defended:
A. L. Abrukin - Method of the Remote Dynamometric Control of the Pumps in Deep Mineral Oil Bore Holes (Metod teledinamometrirovaniya glubinnonasosnykh neftyanykh skvazhin).
G. G. Iordan - Investigation of the Method of Automatic Control of the Liquid Level by Means of Radioisotope Radiation (Issledovaniye metoda avtomaticheskogo kontrolya urovnya zhidkosti s pomoshch'yu izlucheniya radioizotopov).
A. B. Chelyustkin - Automatic Control of the Electric Drive and Mechanisms of the Cogging Mill Train (Avtomaticheskoye upravleniye elektroprivodami i mekhanizmami bluminga).
2) At the Mining Institute (Institut gornogo dela) the

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

Dissertations. Department of Technical Sciences. 30-58-4-37/44
July-December 1957

following dissertations were defended:
a) for the degree of Doctor of Technical Sciences:
A. Ch. Musin - Investigation of the System With Open Purification Space With Adaption to the Exploitation of Sloped Deposits of Dzhezkazgan (Issledovaniye sistem s otkrytym ochistnym prostranstvom primenitel'no k razrabotke pologopadayushchikh zalezhey Dzhezkazgana).
b) for the degree of the Candidate of Technical Sciences:
M. A. Al'tshuler - Improvement of the Exploitation System by Means of Mine Production (Usovershenstvovaniye sistemy razrabotki s minnoy otboykoy).
F. A. Barsukov - Investigation of the Important Parameters of the Subterranian Extraction by Means of Deep Gaps in the Exploitation of Thick Deposits of Solid Ores With a Magnetic Anomaly of Kursk (Issledovaniye osnovnykh parametrov podzemnoy otboyki glubokimi skvazhinami pri razrabotke moshchnykh mestorozhdeniy krepkikh rud Kurskoy magnitnoy anomalii).
V. I. Golomolzin - Determination of the Optimum Parameters of the Pits Under the Conditions of the Krasnoarmeysk District of the Donets Basin (Opredeleniye optimal'nykh parametrov shakht v usloviyakh Krasnoarmeyskogo rayona Donetskogo basseyna).

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

Dissertations. Department of Technical Sciences. 30-58-4-37/44
July-December 1957

G. P. Nikonov - Investigation of the Hollowing Out of Uncovered Rocks in a Hydraulic Excavator Exploitation of Coal Deposits (Issledovaniye razmyva vskryshnykh porod pri gidromonitornoy razrabotke ugol'nykh mestorozhdeniy).
A. D. Pomortsev - Investigation of the Suitability of the Exploitation of Steep Layers of a Thickness of 2-4 , by Means of a Shield System (Issledovaniye tselesoobraznosti razrabotki krutopadayushchikh plastov moshchnost'yu 2-4 m shchitovoy sistemoy).
3) At the Institute for Combustible Mineral Resources (Institut goryuchikh iskopayemykh) the following dissertations for the degree of Candidate of Technical Sciences was defended:
A. N. Strukov - Influence of the Properties of Coke on the Melting Process of Metal in the Cupola Furnace (Vliyaniye svoystv koksa na protsess plavki metalla v vagranke).
4) At the Institute of Metallurgy imeni A. A. Baykov (Institut metallurgii imeni A. A. Baykova) the following dissertations for the degree of the Candidate of Technical sciences were defended:
Card 3/4 M. I. Gromov- Investigation of the Desulfurization Process

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

of Pig Iron in a Rotation Furnace (Issledovaniye protsessa desul'furatsii chuguna vo vrashchayushcheysya pechi).
E. S. Kadaner - Application of the Method of Quantitative Autoradiography for the Investigation of the Microheterogeneity of Light Metal Alloys (Primeneniye metoda kolichestvennoy avtoradiografii dlya issledovaniya mikroneodnorodnosti legkikh plavov).
A. S. Medvedev - Properties of Alloys Soldered by Means of Tin - Lead Solders as well as Some Problems of Soldering of the Air Separation Apparatuses (Svoystva soyedineniy, payannykh olovyanno-svintsevymi pripoyami i nekotoryye voprosy payki vozdukhorazdelitel'nykh apparatov).
L. V. Pliginskaya - On the Problem of the Electro - Precipitation of Nickel From Sulfate Solutions (K voprosu elektroosazhdeniya nikelya iz sernokislykh rastvorov).

1. Mining engineering—Bibliography 2. Bibliography—Mining engineering

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APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B., kand. tekhn. nauk.

Use of magnetic detection of defects in metals abroad. Biul. TSNIICHM no.6:23-30 '58. (MIRA 11:5)
(Magnetic instruments)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B., kand. tekhn. nauk

Using computing equipment in blast-furnace and steel-smelting production. Biul. TSNIICHM no. 9:13-22 '58. (MIRA 11:7)
(Steel--Metallurgy)
(Electronic calculating machines)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B., kand. tekhn. nauk

Using computing equipment in metal rolling. Biul. TSNIICHM no. 10:31-41 '58. (MIRA 11:7)
(Electronic calculating machines)
(Rolling(Metalwork))

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

SOV/133-58-12-8/19

AUTHOR: Chelyustkin, A.B. (Candidate of Technical Science)

TITLE: Continuous Gauging of Metal in the Process of Hot Rolling (Nepreryvnyy kontrol' razmerov metalla v protsesse goryacney prokatki)

PERIODICAL: Stal', 1958, Nr 12, pp 1103-1107 (USSR)

ABSTRACT: Instruments for continuous measurements of the thickness of rolled strip based on x-ray and radioactive isotopes and an instrument for continuous measurements of the width of strip based on photoelectric cells are described and illustrated.
There are 7 figures.

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics of the Ac.Sc. USSR)

Card 1/1

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CHELYUSKIN, A.B.

PV

PHASE I BOOK EXPLOITATION SOV/4022

Akademiya nauk SSSR. Institut nauchnoy informatsii

Avtomatizatsiya proizvodstvennykh protsessov v chernoy i tsvetnoy metallurgii (Automation of Production Processes In Ferrous and Nonferrous Metallurgy) Moscow, 1959. 130 p. 2,000 copies printed.

Additional Sponsoring Agency: USSR. Gosudarstvennyy nauchno-tekhnicheskiy komitet.

Ed.: A. B. Katsman; Tech. Ed.: P. N. Gavrin.

PURPOSE: This book is intended for metallurgists working in metallurgical plants and in scientific research institutes dealing with the problems of automation of metallurgical production processes.

COVERAGE: In the book is reviewed the state of automation of metallurgical plants of the ferrous and nonferrous metals industry. The present levels of automation of blast furnace

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and open hearth furnace processes and of steel rolling in the Soviet Union and elsewhere are described. The automation of ore mining and dressing and of the metallurgical processes as well as of casting and pressworking in nonferrous metallurgy is outlined. The use of control computers for automation of manufacturing processes in U.S.A., Great Britain, USSR and other countries is shown. No personalities are mentioned. There are 126 references: 82 English, 41 Soviet, 2 German, and 1 French.

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APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

Automation of Production (Cont.) SOV/4022

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APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

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APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

DIZHUR, M.M.; CHELYUSTKIN, A.B., kand.tekhn.nauk, red.; DOBUZHINSKAYA, L.V., tekhn.red.

[Introduction of automatic control of technological processes in ferrous metallurgy; a bibliography] Avtomatizatsiia tekhnologicheskikh protsessov v chernoi metallurgii; bibliograficheskii ukazatel'. Pod red. A.B.Cheliustkina. Moskva, Gos.nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 213 p. (MIRA 12:12)

(Bibliography--Automatic control)
(Bibliography--Metallurgy)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B.

report to be presented at the 1st Intl Congress of the Intl Federation of Automatic Control, 25 Jun-5 Jul 1960, Moscow, USSR.

BYKHOVSKIY, M. L. - "Ultra stability in electronic calculating devices in the solution of nonlinear equations in indefinite form"
CHELYUSTKIN, A. B. - "Use of calculating devices in systems for the automatic control of rolling mills"
CHICHINADZE, V. K. - "Concerning some problems of the organization of self-adjusting and self-teaching systems of automatic control, based on principles of random search"
DAVYDOV, N. I. - "Development of automatic control systems for boiler units"
DUDNIKOV, Ye. G. - "Determination of optimum adjustments of industrial automatic regulation systems according to initial data obtained from experience"
DUB'YE, A. I., and ROZENVASSER, E. N. - "Methods of organizing Lyapunov functions in the theory of nonlinear regulating systems"
DRUZHININ, N. N. - "Balanced regulation and inter-communications of a multi-motor electric drive and technology in continuous rolling mills"
FEL'DBAUM, A. A. - "Problems of statistical theory of automatic optimization systems"
FEYGIN, V. I. - "Automation of a reversible cold rolling mill for nonferrous metals"
FILIPPOV, A. F. - "Application of the theory of differential equations with a discontinuous right side to nonlinear problems of automatic regulation"
GAVRILOV, M.A. - "Structural surplus and operational reliability of relay devices"
GANKIN, M. Z. - "Automation of irrigation systems"
GERTSENBERG, G. R., KASHTELYAN, V. E., KOSTENKO, M. P., NEYMAN, L. R., and SIRYY, I. S. - "Power regulation of disturbance and problems of the stability of electric power systems"
GINZBURG, S. A. - "Logical method of synthesis of functional converters"
IL'IN, V. A. - "Methods of transmission of information and the structure of telemechanical systems for dispersed structures"
INOSOV, V. L., and LUTSKIY (fnu) - "The code-impulse system of telemeasurement for dispatched operations of trunk-line gas pipe lines"
IVAKHNENKO, A.G. - "Concerning the application of the theory of combined regulation systems for cybernetic adaptation systems"
KARANDEYEV, K. B., and SHTAMBERGER, G. A. - "A quasi-equilibrated bridge as an element in a system of automatic control"
KAZAKEVICH, V. V. - "Concerning the process of extra regulation of inert objects in the presence of disturbance"
KAZAKOV, I. E. - "Some problems of the theory of statistical linearization and its application"
KILIN, F. M. - "Some problems of the theory of impulse systems with time selectors"
KOBRINSKIY, A. E., BOLKHOVITIN, S. V., VOSKOBOYNIKOV, L.M., IOFFE, D. M., POLYAN, E. P., POPOV, B. P., SLAVUTSKIY, Ya. L., SYSIN, A. Ya., and YAKOBSON, Ya. S. - "The problem of bioelectric control"
KOLOMIYETS, B.T. - "New types of photo resistances and their field of use"
KOROBKO, M.I., MIKHEYUKOV, B. G., and SHUMILOV, K. A. - "System of automatic control and regulation of blast distribution in the tuyeres of blast furnace"
KOROBOCHKIN, B. L. - "Investigation of the dynamics of the hydraulic duct of a copying lathe"
KRASOVSKIY, A. A. - "Dynamics of continuous systems of automatic regulation with extra self-adjustment of corrective devices"
KRASOVSKIY, N. N. - "Concerning the selection of parameters of optimum stability systems"
KUKHTENKO, A. I. - "The dynamics of devices imitating living organisms"
KULEBAKIN, V. S. - "The invariant theory of automatic regulation and control systems"
LANIN, I. D. - "Pneumatic calculating devices as a means of insuring the reliability of complex automation systems"
LAZAREV, V. [illegible] and PARKHOMENKO, P.P. - "Mechanization of processes of analysis and synthesis of the structure of relay devices"

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

DOGANOVSKIY, Stanislav Anatol'yevich; IVANOV, Vasiliy Aleksandrovich; CHELYUSTKIN, A.B., red.; SHIKIN, S.T., tekhn.red.

[Controlled time-delay units] Bloki reguliruemogo zapazdyvaniia. Moskva, Gos.energ.izd-vo, 1960. 61 p. (Biblioteka po avtomatike, no.14). (MIRA 13:10)

(Automatic control)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PHASE I BOOK EXPLOITATION SOV/3738

Chelyustkin, Aleksandr Borisovich

Problemnyye voprosy avtomatizatsii metallurgicheskoy promyshlennosti (Problems of Automation in the Metallurgical Industry) Moscow, Metallurgizdat, 1960. 68 p. 2,700 copies printed.

Ed. of Publishing House: T.I. Kiseleva; Tech. Ed.: L.V. Dobuzhinskaya.

PURPOSE: This booklet is intended for specialists in automation, metallurgists, process engineers, and mechanics.

COVERAGE: The book deals with the basic technical trends in the development of automatic control in the metallurgical industry. The subject matter is presented in the form of problems and possible solutions for them. The main fields of metallurgical production are treated individually. The gradual transition from automatic control of individual operations to full automation of entire processes is discussed. No personalities are mentioned. There are no references.

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Problems of Automation (Cont.) SOV/3738

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PHASE I BOOK EXPLOITATION SOV/3958

Chelyustkin, Aleksandr Borisovich

Primeneniye vychislitel'noy tekhniki dlya upravleniya metallurgicheskimi agretatami. (Using Computer Techniques for the Control of Metallurgical Units) Moscow, Metallurgizdat, 1960. 187 p. Errata slip inserted. 3,150 copies printed.

Ed.: V. I. Gruzin; Ed. of Publishing House: Ye. V. Dokukina; Tech. Ed.: L. V. Dobuzhinskaya.

PURPOSE: This book is intended for engineers and technicians of metallurgical plants, and scientific research organization who are working on the automation of productive processes. It may also be used by senior students taking courses in the appropriate departments at schools of higher technical education and tekhnikums.

COVERAGE: This book discusses the construction of digital and continuous computing devices, describes their elements, and provides circuit diagrams for analoging manufacturing processes and for the realization of various mathematical operations. The application of computer techniques in systems for the automatic control of metallurgical

Card 1/4

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

units is examined, particularly in steel furnaces and in steel and rolling mills. No personalities are mentioned. There are 44 references: 31 Soviet, 10 English, and 3 German.

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Using Computer Techniques (Cont.) SOV/3958

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Using Computer Techniques (Cont.) SOV/3958

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APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B.

Vsesoyuznoye ob"yedinennoye soveshchaniye po avtomatizatsii proizvodstvennykh protsessov v mashinostroyenii i avtomatizirovannomu elektroprivodu v promyshlennosti. 3d, Moscow, 1959

Elektroprivod i avtomatizatsiya promyshlennykh ustanovok; trudy soveshchaniya (Electric Drive and Automation in Industrial Systems; Transactions of the Conference) Moscow, Gosenergoizdat, 1960. 470 p. 11,000 copies printed.

General Eds.: I.I. Petrov, A.A. Sirotin, and M.G. Chilikin; Eds.: I.I. Sud, and E.F. Silayev; Tech. Eds.: K.P. Voronin, and G.Ye. Larionov.

PURPOSE: The collection of reports is intended for the scientific and technical personnel of scientific research institutes, plants and schools of higher education.

COVERAGE: The book is a collection of reports submitted by scientific workers at plants, scientific institutes and schools of higher education at the third Joint All-Union Conference on the Automation of Industrial Processes in Machine Building and Automated Electric Drives in Industry held in Moscow on May 12-16, 1959. The Conference was called by the Academy of Sciences USSR, the Gosplan SSSR (State Planning Commission USSR), the GNTK SSSR, the Gosudarstvennyy Komitet po avtomatizatsii i mashinostroyeniyu (State Committee on Automation and Machine Building) and the Natsional'nyy Komitet SSSR po avtomaticheskomu upravleniyu (USSR National Committee on Automatic Controls) and prepared by the Nauchno-tekhnicheskiy komitet po avtomatizirovannomu elektroprivodu (Scientific and Technical Committee on Automated Electric Drives), the MEI (Moscow Institute of Energetics), the VNIIEM, the IAT (Institute of Automation and Telemechanics) of the Academy of Sciences USSR, and the Komissiya po tekhnologii mashinostroyeniya Instituta mashinovedeniya AN SSSR (Commission on the Technology of Machine Building of the Institute of Science of Machines of the Academy of Sciences USSR). It was the purpose of the Editorial Board to arrange the reports in a way which would ensure a relatively systematic presentation of theoretical and practical problems relating to electric drives and automatic controls of industrial mechanisms used in various branches of industry. Basic problems of automated electric drive and their solution are outlined. The book also contains articles on electric machinery and means of automation. Considerable attention is paid to noncontact automatic control systems, including systems with semiconductor devices and magnetic amplifiers, and to computers intended both for the analysis and the synthesis of linear and nonlinear automatic regulation and control systems. Reports already published in journals or official publications have been considerably abbreviated; those which have appeared in volume V of NII EP transactions or in the journal "Elektrichestvo" are marked with an asterisk. No personalities are mentioned. References accompany some of the papers.

PART I. GENERAL PROBLEMS CONCERNING THE THEORY AND PRACTICE OF ELECTRIC DRIVE AND AUTOMATION OF CONTROL

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A. B.

"Automation of Reversing Primary Mills."

report presented at the Symposium on Variable Speed Electric Drives in Steel Mills, Prague, Czechoslovakia, 5-15 Sep 1960.

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

28(1)

AUTHOR: Chelyustkin, A. B., Candidate of Technical Sciences SOV/119-60-1-12/14

TITLE: Automatic Regulation

PERIODICAL: Priborostroyeniye, 1960, Nr 1, pp 30 - 31 (USSR)

ABSTRACT: Here the book "Avtomaticheskoye regulirovaniye"* by the author Ye. P. Popov is discussed. It deals with the method of calculating automatic control systems.

*[Annotation: published by Gosud. izd. fiz.-mat. literatury, Moscow, 1959, 296 pp.]

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

8 (5), 28 (1), 25 (2) S/105/60/000/02/003/024
B007/B008

AUTHORS: Chelyustkin, A. B., Candidate of Technical Sciences, Ivanov, V. A., Candidate of Technical Sciences

TITLE: A Self-tuning System for the Automatic Control of the Welding Process of Electric Tube-welding Machines

PERIODICAL: Elektrichestvo, 1960, Nr 2, pp 13 - 18 (USSR)

ABSTRACT: The systems for the control of production processes are provided with computing devices. These carry out an automatic tuning of their parameters with a variation of the characteristics of the object to be controlled. The parameters of the compensating computation device must therefore be corrected with the variation of the characteristics of the object and the controller. A method (Ref 5) in which such a correction takes place by way of an investigation of the so-called pseudo-cross-correlation function $\varphi(t) = \int_0^t x(t) \cdot f(t - \tau)dt$, is discussed. τ is the retardation time, $f(t)$ is the disturbance. It follows from the formula that if the invariance condition is fulfilled, the

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function $\varphi(t)$ assumes a finite stable value. This method, compared with others, shows a high degree of immunity from disturbance. In a great number of control objects, the transmission factor is the only variable parameter of the characteristic, while the transmission function itself remains practically constant. A welding machine for the electric welding of tubes belongs also to such objects. A tube with different ohmic and inductive resistance can be welded at unchanged time constants of the control circuit for the welding current. The task of the self-tuning consists here in adjusting the nominal value of the transmission factor, which corresponds to the transmission factor of the object, in the compensating computing device. As an example for the application of such a self-tuning system, one for the self-tuning of the welding process in an electric tube welding machine is investigated. The control system of the machine and that during welding respectively is described first. A compensating device is incorporated additionally. It allows to vary the welding current amperage according to the thickness of the sheet metal strip in such a way that the welding

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temperature remains constant. The basic wiring diagram of such a control is shown in figure 3. The working method of the compensating device is described. A second computing device is applied in the self-tuning system to increase the immunity from disturbance. This computes the pseudo-cross-correlation function $\varphi(t) = \int_0^t \Delta\theta \cdot \Delta\delta \cdot dt$, $\Delta\theta$ being the time function of the temperature variations at the welding seam and $\Delta\delta$ the time function of the variations in thickness. Formulas (7) and (8) are derived. The parameters of the main links of the first compensation device at known object parameters can be determined from these formulas. The transition processes in the self-tuning system are then investigated too. The system described here was tried out in an electric tube welding machine. The welding temperature diagrams for manual and automatic control are shown in comparison in figure 5. It can be seen therefrom, that the temperature variations decrease considerably in the case of automatic control. There are 5 figures and 6 Soviet references.

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A Self-tuning System for the Automatic Control of the Welding Process of Electric Tube-welding Machines

S/105/60/000/02/003/024
B007/B008

ASSOCIATION: Institut avtomatiki i telemekhaniki AN SSSR (Institute of Automation and Telemechanics of the AS USSR)

SUBMITTED: July 14, 1959

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

S/569/61/006/000/007/008
D201/D301

AUTHOR: Chelyustkin, A. B. (USSR)

TITLE: The use of computers in the rolling mill automatic control systems

SOURCE: International Federation of Automatic Control. 1st Congress, Moscow, 1960. Trudy, v.6. Avtomatizatsiya proisvodstvennykh protsessov; khimiya, neftepererabotka, teploenergetika, yadernaya energetika, metallurgiya. Moscow, 1961, paragraph 4, p. 578 and 6, p. 582

TEXT: Para. 4: Control of metal thickness in hot rolling: Owing to cooling of the blank, its tail end is rolled at a lower temperature, so that the stabilization of the blank heating temperature is insufficient. To compensate for the changes in thickness due to changes in temperature an arrangement may be used in which an optical pyrometer, by measuring the deviation from the required temperature, produces corresponding changes in the setting of the pressure control system. Since the coefficient of proportionality

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between the magnitude of temperature deviation and that of the shift opposition of the upper roller, depends on the properties of the rolled metal and on its absolute thickness, a computer is used for automatically setting the value of this coefficient. The computer determines the correctness of choice of the coefficient φ from the correlation expression

$$\varphi = \int_0^t \Delta T(t)\, \Delta h(t) dt$$

The computer consists of an integrator and of as many storage devices as there are sections in the whole length of the metal strip. Integration is carried out separately for each strip section, as the step-by-step switch stores consecutively the results in corresponding memories. The rolling program is developed not from one, but from several rolling operations, to avoid substantial changes of it due to spurious thickness variations. Para. 6: Control of

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The use of computers ...

strip thickness in cold rolling: Experimental investigations have shown that differences in the thickness of strips rolled at the same speeds, are determined mainly by varying thickness resulting from hot rolling process. The control system is thus placed not at the end, but before the stand of the rolling mill. As in the hot rolling mill, in such a system the coefficient of proportioality between the errors and the roller shift is determined by a computer which compares the strip thickness before and after the mill stand. For maximum simplicity it utilizes a logic system of multiplication of signs of thickness deviations before and after the stand, the logic system determining the required sign of change in the coefficient. In continuous rolling machines, a second, correcting computer is used if accuracy is required. This computer, by comparing the thickness of fluctuations at input and output acts as an optimizer of the parameters of the first. The analysis of the system on an analogue has shown that the first (correcting) computer has to adjust two parameters of the compensating one, namely its gain and delay time. Structurally this is best achieved by means of a step-by-step hunt using the method of gradient.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

S/030/61/000/001/008/017
B105/B206

AUTHOR: Chelyustkin, A. B., Candidate of Technical Sciences

TITLE: Symposium on the Automatic Control of Rolling Mills With Electric Drive

PERIODICAL: Vestnik Akademii nauk SSSR, no. 1, 1961, 100-101

TEXT: The Symposium on the Automatic Control of Rolling Mills With Electric Drive was held by the Czechoslovakian Scientific-technical Association in Prague from September 6 to 8, 1960. It was attended by experts from Czechoslovakia, Britain, Hungary, Eastern Germany, China, Poland, Rumania, the USSR, the USA, and the Federal German Republic. The reports can be divided into several groups according to their themes. In the group dealing with problems of control by means of accelerating and retarding the electric drive, the report by L. Kule (Czechoslovakia) on the setup of an optimum control circuit for the main drive of the bloomings is given special mention. V. S. Slezhanovskiy (USSR) reported on the synthesis of a most favorable control circuit for the electric drive of the auxiliary mechanisms. In this connection L. Kule utilizes

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the control according to the derivative of the generator voltage which is equivalent to the control of the dynamic component of the armature current. This excludes the effect of temperature factors and the utilization of a special generator for the simulation of the nonlinear dependence between current and excitation flux of the motor. V. S. Slezhanovskiy showed that the utilization of nonlinear converters which warrant the optimum law of the change of the magnetomotive force of the electromachine amplifier feeding the field coil of the generator, permits the use of only one coil of the mechanical-amplifier control, which makes it possible to simplify the scheme and reduce the number of apparatus. The second group consisted of reports on problems of automatic control of rolling mill mechanisms. N. N. Druzhinin (USSR) dealt with the correlations of the technological rolling-mill process on a continuous rolling train and formulated the demands on the control system by means of electric drives. V. Anderle (Czechoslovakia) recommended a Selsyn tachometric system for safeguarding uniform trimming of the front end of the semifinished product by means of an automatic cutter on continuous rolling mills. J. Kučera (Czechoslovakia) elaborated a scheme

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for controlling the strip tension on a reversible cold-rolling mill by means of a special computer installation. G. Krüger (Eastern Germany) reported on a system of automatic calculation and control for the blooming shop by utilizing a punched-card computer. A. B. Chelyustkin dealt with the aspects of utilizing calculation technology for an operative control in order to warrant rhythmical and coordinated operation of all mechanisms.

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PETROV, B.N.; SOTSKOV, B.S.; LARIONOV, A.N.; CHILIKIN, M.G.; SYROMYATNIKOV, I.A.; BLAGONRAVOV, A.A.; KRUZHILIN, G.N.; IVAKHNENKO, A.G.; MAGORSKIY, V.D.; CHELYUSTKIN, A.B.; DROZDOV, N.G.; PETROV, I.I.

Seventieth birthday of Viktor Sergeevich Kulebakin. Elektrichestvo no.10:90-91 O '61. (MIRA 14:10)
(Kulebakin, Viktor Sergeevich, 1891-)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A. B.

" Problems of Automation in Rolling Mill Production "
Report presented at the International Seminar on Automatic Control in the Iron and Steel Industry, Brussels, Belgium, 19-23 Feb 1962.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B.

BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; BERKOVICH, D.M., zaml glav. red.; LERNER, A.Ya., doktor tekhn. nauk, prof., zam. glav. red.; AVEN, O.I., red.; AGEYKIN, D.I., red.; kand. tekhn. nauk, dots., red.; AYZERMAN, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; VORONOV, A.A., doktor tekhn. nauk, prof., red.; GAVRILOV, M.A., doktor tekhn. nauk, prof., red.; ZERNOV, D.V., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., kand. tekhn. nauk, red.; KOGAN, B.YA., doktor tekhn. nauk, red.; KOSTOUSOV, A.I., red.; KRUNITSKIY, N.A., kand. fiz.-mat. nauk red.; LEVIN, G.A., prof. red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; MOSSIYEVSKIY, V.L., red.; MAKSAREV, Yu.Ye., red.; MASLOV, A.A., dots., red.; POPKOV, A.A., red.; RAKOVSKIY, M.Ye., red.; ROZENBERG, L.D., doktor tekhn.nauk, prof., red.; SOTSKOV, B.S., red.; TIMOFEYEV, P.V., red.; USHAKOV, V.B., doktor tekhn. nauk, red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; FROLOV, V.S., red.; KHARKEVICH, A.A., red.; KHRAMOY, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.B., kand. tekhn. nauk, red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, dots., red.; BOCHAROVA, M.D., kand. tekhn.nauk, starshiy nauchnyy red.; DELONE, N.N., inzh., nauchnyy red.; BARANOV, V.I., nauchnyy red.; PAVLOVA, T.I., tekhn. red.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

BERG, A.I.—— (continued). Card 2.

[Industrial electronics and automation of production processes]Avtomatizatsiia proizvodstva i promyshlennaia elektronika. Glav. red. A.I.Berg i V.A.Trapeznikov. Moskva, Gos.nauchn. izd-vo "Sovetskaia Entsiklopediia." Vol.1. A - I. 1962. 524 p. (MIRA 15:10)

1. Chlen-korrespondent Akademii nauk SSSR (for Sotskov, Kharkevich, Zernov, Timofeyev, Popkov).

(Automatic control) (Electronic control)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, Aleksandr Borisovich; LIBENSON, David Yakovlevich ;
IVANOV, S.M., red.; NAZAROVA, A.S., tekhn. red.

[Automation for our plants]Avtomatika dlia nashikh zavodov.
Moskva, Izd-vo "Znanie," 1962. 30 p. (Novoe v zhizni, nauke,
tekhnike. IV Seriia: Tekhnika, no.13) (MIRA 15:9)
(Automation)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B.; POSYSAYEV, N.S.

Automatic machines are our helpers. Mashinostroitel' no.8: 8-9 Ag '62. (MIRA 15:8)

1. Zamestitel' direktora Instituta avtomatiki i telemekhaniki AN SSSR.

(Automation)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

ZVENIGORODSKIY, B.M.; CHELYUSTKIN, A.B.

Complete automation of industry is a decisive factor in carrying out the party's resolutions. Stal' 22 no.3:193-198 Mr '62. (MIRA 15:3)

(Steel industry) (Automation)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

BELEN'KIY, A.A. (Moskva); CHELYUSTKIN, A.B. (Moskva)

Dynamics of continuous automatic optimalizers for a certain class of systems. Avtom. i telem. 24 no.6:785-798 Je '63. (MIRA 16:7)

(Automatic control)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.B., kand. tekhn. nauk

Colloquium on the Use of Mathematical Methods in Economic Research. Vest. AN SSSR 33 no.10:94-95 O '63. (MIRA 16:11)

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BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KHARKEVICH,A.A., akad., red.;TIMOFEYEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' resheniia - Teleizmeritel'naia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)

1. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

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AVEN, O.A.; DVORETSKIY, V.M.; DOMANITSKIY, S.M.; ZALMANZON, L.A.; KRASSOV, I.M.; KRUG, Ye.K.; TAL', A.A.; KHOKHLOV, V.A.; BULGAKOV, A.A.; DEMIDENKO, Ye.D.; BERNSHTEYN, S.I.; YEMEL'YANOV, S.V.; LERNER, A.Ya.; MEYEROV, M.V.; PEREL'MAN, I.I., FITSNER, L.N.; CHELYUSTKIN, A.B.; ZHOZHIKASHVILI, V.A.; IL'IN, V.A.; AGEYKIN, D.I.; GUSHCHIN, Yu.V.; KATYS, G.P.; MEL'TTSER, L.V.; PARKHOMENKO, P.P.; MIKHAYLOV, N.N.; FITSNER, L.N.; PARKHOMENKO, P.P.; ROZENBLAT, M.A.; SOTSKOV, B.S.; VASIL'YEVA, N.P.; PRANGISHVILI, I.V.; POLONNIKOV, D.Ye.; VOROB'YEVA, T.M.; DEKABRUN, I.Ye.

Work on the development of systems and principles of automatic control at the Institute of Automatic and Remote Control during 1939-1964. Avtom. i telem. 25 no. 6:807-851 Je '64. (MIRA 17:7)

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BERG, A.I., glav. red.; TRAPEZNIKOV, V.A., glav. red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; VORONOV A.A., prof., red.; AGEYKIN, D.I., doktor tekhn.nauk red.;GAVRILOV, M.A., red.; VENIKOV, V.A., doktor tekhn. nauk, prof., red.; SOTSKOV, B.S., red.; CHELYUSTKIN, A.B., doktor tekhn. nauk, red.; PROKOF'YEV, V.N., doktor tekhn. nauk, prof., red.; IL'IN, V.A., doktor tekhn. nauk, prof., red.; KITOV, A.I., doktor tekhn. nauk, red.; KRINITSKIY, N.A., kand. fiz.-mat. nauk, red.; KOGAN, B.Ya., doktor tekhn. nauk, red.; USHAKOV, V.B., doktor tekhn. nauk, red.; LERNER, A.Ya., doktor tekhn. nauk, prof., red.; FEL'DBAUM, A.A., doktor tekhn. nauk, prof., red.; SHREYDER, Yu.A., kand. fiz.-mat. nauk, red.; KHARKEVICH, A.A., akademik, red. [deceased]; TIMOFEYEV, P.V., red.; MASLOV, A.A., dots., red.; TRUTKO, A.F., inzh., red.; LEVIN, G.A., prof., red.; LOZINSKIY, M.G., doktor tekhn. nauk, red.; NETUSHIL, A.V., doktor tekhn. nauk, prof., red.; POPKOV, V.I., red.; ROZENBERG, L.D., doktor tekhn. nauk, prof., red.; LIFSHITS, A.L., kand. tekhn. nauk, red.; AVEN, O.I., kand. tekhn. nauk, red.; BLANN, O.M.[Blunn, O.M.], red.; BROYDA, V., inzh.,prof.,red.; BREKKL', L. [Brockl,L.] inzh., knad. nauk, red.; VAYKHARDT, Kh. [Weichardt, H.], inzh., red.; BOCHAROVA,M.D., kand. tekhn. nauk, st. nauchn. red.

[Automation of production processes and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia entsiklopediia. Vol.4. 1965. 543 p. (MIRA 18:6)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSTKIN, A.H., red.; ITSKOVICH, E.L., red.; PLISKIN, L.G., red.; RAYHMAN, N.S., red.; CHERNYSHEV, V.N., red.; VOLKOV, V.L., red.; CHADEYEV, V.M., red.

[Automatic operational control of production processes; transactions] Avtomaticheskoe operativnoe upravlenie proizvodstvennymi protsessami; trudy. Moskva, Nauka, 1965. 244 p. (MIRA 18:11)

1. Vsesoyuznaya konferentsiya po avtomaticheskomu operativnomu upravleniyu proizvodstvennymi predpriyatiyami. 1st. Moscow, 1963.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHELYUSHKIN Yu. G.

ORLOV, Pavel Mikhaylovich, prof., doktor tekhn.nauk; CHELYUSHKIN, Yu.G., red.; MAKHOVA, N.N., tekhn.red.

[Principles of surveying] Osnovy geodezii; zemlemerie. Izd. 3-e. Moskva, Gos. izd-vo sel'khoz. lit-ry, 1957. 247 p. (MIRA 11:5)

1. Moskovskaya ordena Lenina sel'skokhozyaystvennaya akademiya im. K.A.Timiryazeva (for Orlov)
(Surveying)

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L 10257-63 EWT(d)/BDS AFFTC/ASD/APGC Pg-4/Pk-4/Pl-4/Po-4/Pq-4 BC/LJP(C)

ACCESSION NR: AP3001090 S/0103/63/024/006/0785/0798

74

AUTHOR: Belen'kiy, A. A.(Moscow); Chelyustkin, A. B. (Moscow)

TITLE: Dynamics of continuous automatic optimizers for one class of systems

SOURCE: Avtomatika i telemekhanika, v. 24, no. 6, 1963, 785-798

TOPIC TAGS: optimizer for automatic controllers, self-resetting automatic control

ABSTRACT: A self-resetting automatic control system is regarded as a filter that stops a disturbance short of the output of a controlled system. However, simultaneous existence of other disturbances slowly varies the parameters of the correcting device and necessitates introduction of an "optimizer". The latter is in fact a computer that modifies the correcting actions according to an adopted criterion for evaluating the optimality. Transient responses and stability conditions under both the statistically assigned and the determinate disturbances are analyzed mathematically. It is inferred that the use of correlation methods of control permits designing interference-proof automatic optimizing systems. Such systems are applicable to welding processes in electric tube-welding machines, to controlling strip thickness in rolling mills, etc. Orig. art. has: 2 figures and 49 formulas.

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TRAPEZNIKOV, V.A., akademik, glav. red.; AYZERMAN, M.A., doktor tekhn. nauk, red.; AGEYKIN, D.I., kand. tekhn. nauk, red.; ARTOBOLEVSKIY, I.I., akademik, red.; BATRACHENKO, L.P., inzh., red.; VORONOV, A.A., doktor tekhn. nauk, red.; GAVRILOV, M.A., doktor tekhn. nauk, red.; DIKUSHIN, V.I., akademik, red.; KARIBSKIY, V.V., kand. tekhn. nauk, red.; KOGAN, B.Ya., kand. tekhn. nauk, red.; KRASIVSKIY, S.P., red.; KULEBAKIN, V.S., akademik, red.; LERNER, A.Ya., doktor tekhn. nauk, red.; LETOV, A.M., kand. tekhn. nauk, red.; MEYEROV, M.V., doktor tekhn. nauk, red.; PETROV, B.N., akademik, red.; PUGACHEV, V.S., doktor tekhn. nauk, red.; SOTSKOV, B.S., red.; STEFANI, Ye.M., kand. tekhn. nauk, red.; KHRAMOY, A.V., kand. tekhn. nauk, red.; TSYPKIN, Ya.Z., doktor tekhn. nauk, prof., red.; CHELYUSTKIN, A.O., kand. tekhn. nauk, red.; CHILIKIN, M.G., doktor tekhn. nauk, red.; NAUMOV, B.N., kand. tekhn. nauk, red.; KASHINA, P.S., tekhn. red.

[Transactions of the International Federation of Automatic Control, 1st International Congress, Moscow, 1960] Trudy I Mezhdunarodnogo kongressa Mezhdunarodnoi federatsii po avtomaticheskomu upravleniiu. Moskva, Izd-vo Akad. nauk SSSR. Vol.2. [Theory of discrete systems, optimal systems, and adaptive automatic control systems] Teoriia diskretnykh, optimal'nykh i samonastraivaiushchikhsia sistem. 1961. 996 p.
(MIRA 14:9)

1. International Federation of Automatic Control, 1st International Congress, Moscow, 1960. 2. Chlen-korrespondent AN SSSR (for Sotskov)
(Automatic control)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

SOV/126-6-5-22/43

AUTHOR: Chemadurova, Ye.Yu.

TITLE: Investigation of the Change in Block Size in Second-order Distortions Due to Heating of Cold-worked Heat-resistant Steels (Issledovaniye izmeneniya velichiny blokov i iskazheniy vtorogo roda pri nagreve kholodnodeformirovannykh teplostoykikh staley)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 5, pp 905 - 911 (USSR)

ABSTRACT: A study of the process of softening and change in fine structure on heating was carried out on the polyferritic steel EI428, the pearlitic steel EI531 and the ferritic steel Zh27; the chemical compositions of these steels are given in a table, p 905. The influence of heating temperature on the change of the fine structure was investigated after carrying out various degrees of deformation and heating the specimens for 40 min at various temperatures. The extent of second-order distortions and block sizes was determined by a method worked out by L.I. Lysak (Ref 2). The results of the study of the influence of tempering temperature on the fineness of structure and hardness of cold-worked steels is shown

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Investigation of the Change in Block Size in Second-order Distortions Due to Heating of Cold-worked Heat-resistant Steels

graphically in Figures 1-9. In Figure 1, the change in second-order distortion and in Figures 2 and 3, the change in block sizes and hardness, respectively, of cold-worked steel EI428 in relation to heating temperature are shown. By comparing Figures 1-3 it can be seen that the hardness and the extent of second-order distortion remains practically unchanged up to 300 °C. In the range 300 to 600 °C there is no relationship between change in second-order distortions and hardness. On heating to a range of 300 to 400 °C a sharp decrease in second-order distortion occurs, whereas the hardness only begins to decrease at 600 °C. There is also no relationship between change in block size and hardness on heating. A rapid increase in block size occurs on heating above 500 °C. In Figures 4-6 the change in block size $\delta a/a$ and hardness of specimens of steel EI531, deformed at room temperature by 25 and 50%, in relation to heating temperature, is shown. Figures 7,8 and 9 show the relationship between temperature and the following: second-order distortions, block size and

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hardness, respectively, for steel Zh27 deformed by 5, 10, 25 and 50%. In a plastically deformed metal a portion of the energy spent on deformation is retained in the form of second and third-order residual-stress energy. The major portion (90%) of this energy concentrates as third-order stress along the block boundaries, as a result of which the crystal lattice becomes unstable. Hence, the free energy of deformed metal is greater than that of undeformed. The metal can be made stable only if the mobility of the atoms is great enough to enable them to move into stable positions. This can only occur on heating the metal to a temperature at which the atomic bond weakens due to heat oscillations and the atoms can move into their equilibrium positions in the crystal lattice. Such atomic movement brings about partial restoration of original physical properties by removal of some elastic distortions of the first, second and third order from the crystal lattice and is called relaxation or recovery. At higher temperatures recrystallisation occurs, whereby new undeformed crystals make their appearance and the original properties are practically fully restored.

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Investigation of the Change in Block Size in Second-order Distortions Due to Heating of Cold-worked Heat-resistant Steels

In Figure 10, the change of the diffusion picture with increase in temperature of X-ray photographs of deformed steels is shown. By comparing Figures 9 and 10, it can be seen that the change in hardness of the investigated steels on increasing the tempering temperature is of the same nature as the change in intensity of the diffusion picture in X-ray photographs. A consideration of the second-order distortions (Figures 1, 4 and 7), hardness (Figures 3,6 and 9) and diffusion picture in X-ray photographs from which the third-order distortions can be indirectly gauged (Figure 10) leads to the following conclusions. The relaxation which on X-ray photographs shows up as a decrease in the width of the interference line after heating cold-deformed specimens and which lowers the second-order distortions of the crystal lattice of ferritic and polyferritic steels commences on heating above 400 °C and of pearlitic steel by heating above 200 °C.

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SOV/126-6-5-22/43

Investigation of the Change in Block Size in Second-order Distortions Due to Heating of Cold-worked Heat-resistant Steels

Relaxation leading to a decrease in hardness on heating of cold-deformed polyferritic and pearlitic steels commences above 600 °C and of ferritic steels above 550 °C. There are 10 figures, 1 table and 2 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut (All-Union Scientific Research Institute for Pipes)

SUBMITTED: February 12, 1957

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

SOV/126-6-6-19/25

AUTHOR: Chemadurova, Ye.Yu.

TITLE: Investigation of the Fine Structure of High-temperature Tube Steels as a Function of the Degree of the Plastic Deformation (Issledovaniye tonkoy struktury teplostoykikh trubnykh staley v zavisimosti ot stepeni plasticheskoy deformatsii)

PERIODICAL: Fizika Metallov i Metallovedeniye, 1958, Vol 6, Nr 6, pp 1095 - 1099 (USSR)

ABSTRACT: The aim of the author was to determine separately the Type II distortions and the block dimensions in pearlitic (EI531), semi-ferritic (EI428) and ferritic (Zh27) high-temperature alloy steels after deformation in the cold state from the width of their interference lines. On the basis of the obtained results, an attempt is made to elucidate the difference in the behaviour of these steels in the case of plastic deformation in the cold state. The chemical compositions of the steels are entered in a table, p 1095. All these three steels have a tendency to develop brittle fracture. From tubes, strips were cut which were 300 mm long and 10 mm thick. For obtaining a fine-grain structure, the strips were rolled with a reduction

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Investigation of the Fine Structure of High-temperature Tube Steels as a Function of the Degree of the Plastic Deformation

of 40% and then tempered for 40 min at 600 °C and 800 °C, respectively with subsequent cooling in water for the purpose of preventing temper brittleness. From this initial state, the strips of two steels were rolled on a laboratory stand with reductions of 5, 10, 25 and 50%. For the third steel (EI531) the influence of plastic deformation on the fine structure was studied for a total reduction of 25 and 50%; the deformed surface layer was eliminated by electrolytic dissolution to a depth of 0.15 mm. The obtained experimental data are graphed in Figures 1-3; Figure 1 shows the dependence of Type II distortions on the degree of deformation (reduction); Figure 2 shows the dependence of the size of the blocks on the degree of deformation; Figure 3 shows the dependence of the hardness of the steel on the degree of deformation. The here described study of the changes in the fine structure of three alloy steels of various classes, with low carbon contents, as a function of the degree of plastic deformation has shown that work-hardening of the steel

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Investigation of the Fine Structure of High-temperature Tube Steels as a Function of the Degree of the Plastic Deformation

during deformation in the cold state is due mainly to changes in the size of the blocks and not to Type II distortions, which accompany the process of formation of a sub-microstructure. The nature of the work hardening of metals and alloys during plastic deformation, alloying and heat treatment has so far not been fully clarified and the views of various Soviet authors (Refs 4-6) are discussed. In conclusion, it is stated that the work hardening caused by the formation of sub-microstructural non-uniformities can be explained, in the first instance, on the basis of the assumption that the block boundaries form barriers which prevent development of plastic deformation due to the fact that displacements are blocked by admixtures, inclusions, etc. In the second instance, it can be explained by the concepts of G.V. Kurdyumov (Ref 6) on the role of the small size of the blocks (200-300 Å) which leads to a reduction in the number of atoms which participate in each individual slip movement.

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SOV/126-6-6-19/25

Investigation of the Fine Structure of High-temperature Tube Steels as a Function of the Degree of the Plastic Deformation

There are 3 figures, 1 table and 6 Soviet references.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut (All-Union Tube Scientific Research Institute)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

AUTHOR: Chemadurova, Ye. Yu., Engineer SOV/129-58-10-8/14

TITLE: Influence of the Conditions of Deformation in the Cold State and the Heat Treatment Regime on the Fine Structure of the Steel EI428 (Sicromal) (Vliyaniye usloviy provedeniya deformatsii v kholodnom sostoyanii i rezhima termoobrabotki na tonkuyu strukturu stali EI428 (Sikhromal'))

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 10, pp 36-40 (USSR)

ABSTRACT: In spite of high ductility, the hot rolled steel EI428 has a very low impact strength. The fracture occurs along the grain. The mechanical properties of the high temperature tempered steel do not differ from those of the steel in the hot rolled state, whilst hardening from 950°C followed by high temperature tempering at 800°C increases the impact strength to 1.5 kgm/cm^2 (Ref.1). For reducing the tendency of this steel to cracking during the manufacture of pipes, the blanks are preliminarily heated to a temperature above the upper critical brittleness range. For studying the nature of these phenomena, the author of this paper investigated the

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Influence of the Conditions of Deformation in the Cold State and the Heat Treatment Regime on the Fine Structure of the Steel EI428 (Sikhromal')

changes in the fine structure of this steel as a function of the conditions of deformation in the cold state and of the heat treatment regimes. The composition of the investigated steel was as follows:
0.08% C, 0.26% Mn, 1.55% Si, 5.96% Cr, 0.84% Al, 0.006% S and 0.015% P.
The influence of the rolling regime was studied on specimens which were heated prior to deformation in an oil bath to 180°C, i.e. above the upper temperature of the critical brittleness range, and on specimens which were rolled without preliminary heating. As starting material, strips were chosen which were cut from hot-rolled pipes. These were rolled on a laboratory rolling stand with a total reduction of 20% in a single pass. For studying the influence of the heat treatment regime hardening temperatures of 900, 950 and 1050°C were chosen with a tempering temperature of 800°C and cooling in water and in air. The surface layer deformed by mechanical working was removed for X-ray diffraction analysis by

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Influence of the Conditions of Deformation in the Cold State and the Heat Treatment Regime on the Fine Structure of the Steel EI428 (Sikhromal')

anodic dissolution to a depth of 0.15 mm. The Type II distortions and the block dimensions in the micro-structure of the specimens were determined separately from the widening of the interference lines of X-ray patterns produced with two radiations according to the method described by L. I. Lysak (Ref 2). The data on the fine structure of the specimen as a function of the cold rolling regime are entered in Table 1 and it can be seen that the deformation brings about an increase in the Type II distortions and also a decrease of the size of the blocks. In the case of warm rolling after preliminary heating of the blanks in oil (specimens Nos.35 and 37, Table 1), the blocks get smaller as compared to the specimens rolled without preheating. Micro-structure photographs of the specimens rolled without and with preheating are reproduced in Fig.1; the grain structure is finer after rolling if preheating is applied prior to rolling, this is attributed to ageing processes. Experimental data on the fine crystalline

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Influence of the Conditions of Deformation in the Cold State and the Heat Treatment Regime on the Fine Structure of the Steel EI428 (Sikhromal')

structure of the steel EI428 as a function of the heat treatment regime are entered in Table 2 and it can be seen that increased cooling speeds influence the Type II distortions and the block sizes. Rapid cooling brings about a more uniform structure which forms as a result of alloying elements becoming fixed in the α-solid solution; in this case a lower quantity of decomposition products of the γ-phase is observed and these are distributed along the grain boundaries as well as inside the grains, apparently along the block boundaries. In studying certain cases of block formation in aluminium (Ref 5) it was found that there is preferential concentration of admixtures along the boundaries of the macro-mosaic blocks. In the case described in this paper, heating of the steel above the Ac_1 point brings about a saturation of the solid solution with alloying elements due to dissolution of carbides and admixtures in the inter-block sections; rapid cooling in water "fixes" the

 super-saturated solid solution in the inter-block inter-

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Influence of the Conditions of Deformation in the Cold State and the Heat Treatment Regime on the Fine Structure of the Steel EI428 (Sikhrdmal')

layers. The strength of the interatomic bond in such a solid solution is higher and this manifests itself in an increased ultimate strength. Slow cooling in air of the steel after heating above the Ac_1 point brings about separation and coagulation of the alloying elements in the form of carbides or admixtures along the block boundaries. This leads to a coarsening of the blocks, a reduction in the strength and increased heterogeneity of the alloy, which causes brittle fracture during further plastic deformation, particularly if brittle phases separate out along the inter-boundary surfaces.
There are 2 figures, 3 tables and 5 references, all of which are Soviet.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut (All-Union Scientific Research Institute for the Manufacture of Pipes)

1. Steel—Fracture 2. Steel—Mechanical properties 3. Steel—Heat treatment 4. Steel—Deformation 5. Steel—Structural analysis

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SOV/126-8-3-27/33

AUTHOR: Chemadurova, Ye.Yu.

TITLE: Fine Structure in the Brittle and Ductile Fracture of EI531-Steel Tubes on Testing with a Cone for Expansion

PERIODICAL: Fizika metallov i metallovedeniye, 1959, Vol 8, Nr 3, pp 466-468 (USSR)

ABSTRACT: The failure of tubes during manufacture by cold working as well as during technological testing with a cone for expansion at the same external stresses, appears to be associated not only with a variable microstructure but also with the nature of the fine structure. In order to establish the difference in fine structure between specimens, made from heat resistant EI531 steel tubes, which can and those which cannot withstand technological testing with a cone for expanding secondary crystallographic lattice distortions and block sizes were determined from the broadening of interference lines. Tests for expanding were carried out after heat treatment by cold working with a mandrel of 1/10 conicity until the external diameter had increased by 6%. Cracks and ruptures, exfoliations and laps must be absent. Another form of testing consists in expanding the tube until it

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Fine Structure in the Brittle and Ductile Fracture of EI531-Steel Tubes on Testing with a Cone for Expansion

fails. Failure occurs at different extents of external diameter increase (fracture can occur even in an undeformed portion of tube if the latter is brittle). The appearance of the fracture depends on the plastic properties of the steel. The figure shows photographs of fractures of specimens which had, and those which had not, withstood this test. In the first case (Fig 1a) the fracture is mat grey, fibrous and testifies to the high plastic properties of the metal. In the second case (Fig 1b) the fracture is crystalline, bright, pale with small tears and is brittle. The microstructure of these specimens was practically identical, namely fine-grained, consisting of equiaxed polyhedrons and globular carbides. For the investigation, specimens were cut out from an undeformed tube portion of a composition given in the Table (p 467). The layer, deformed as the result of mechanical treatment, was removed by anodic solution to a depth of 0.15 mm. In order to distinguish between the broadening of interference lines due to secondary distortions and that due to small block size, a method

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Fine Structure in the Brittle and Ductile Fracture of EI531-Steel Tubes on Testing with a Cone for Expansion

was used in which X-ray photographs were taken in two radiations (as EI531 steel is low in carbon). This method was suggested by L.I.Lysak (Ref 1). X-ray pictures were taken by the inverse exposure method in a chromium irradiation of (211) facets and in molybdenum irradiation of (651) facets, which have identical reflection angles of approximately 78°. Broadening of interference lines due to the geometry of exposure was excluded by elimination from the total width as given by the standard specimen. An EI531 specimen, tempered for 6 hours at 700°C, was used as the standard. The X-ray negatives were photometered by means of an MF-2 microphotometer. The line width was determined as the ratio between the integral intensity and the height of the maximum. The experimental and calculated values of secondary distortions δa/a, block sizes, D, and hardness (Rockwell B scale) are shown in the Table, p 468. A comparison between microstructures, hardness, secondary distortions and block sizes leads to the conclusion that the difference in the nature of fracture obtained in

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SOV/126-8-3-27/33

Fine Structure in the Brittle and Ductile Fracture of EI531-Steel Tubes on Testing with a Cone for Expansion

technological testing with a cone for expanding, is associated with the dimensions of regions which coherently disperse X-rays (blocks). There are 1 figure, 2 tables and 1 Soviet reference.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy trubnyy institut (All-Union Scientific Tube Research Institute)

SUBMITTED: October 13, 1958

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

S/125/63/000/003/007/012
A006/A101

AUTHORS: Chemadurova, Ye. Yu., Yakovleva, G. N.

TITLE: Corrosion resistance of stainless steel pipes welded by the argon-arc method

PERIODICAL: Avtomaticheskaya svarka, no. 3, 1963, 56 - 61

TEXT: The investigation was made with 38.0 x 2.5 mm pipes of steel grades 1X18H9T (1Kh18N9T), 0X18H9T (0Kh18N9T), and 00X18H12T (00Kh18N12T). The tests were performed in 65%-nitric acid and in an acid solution of copper vitriol by the AM method (GOST 6032-58). Besides determining loss in weight (method "D") and intercrystalline cracks in Z-shaped bending (AM method) specimens subjected to boiling were metallographically analyzed. Welded specimens were heated in a laboratory electric furnace and welded pipes in an intermediate roller gas-furnace. Total preheating time was 55 min; holding time - 7 to 8 minutes. Prior to the tests all the specimens were subjected to additional two-hour provoking tempering at 650°C. The tests yielded the following results. 00Kh18N12T steel pipes, welded by the argon-arc method, are after quenching from 1,050 - 1,100°C

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Corrosion resistance of stainless steel pipes... S/125/63/000/003/007/012
A006/A101

not prone to intercrystalline corrosion in nitric acid (D method) and sulfuric-acid solution (AM method). Welded OKh18N9T pipes with about 0.06% C and sixfold titanium content in respect to carbon, can be used as a finished product after heat treatment in an intermediate roller furnace with 7 - 8 min. holding time at temperatures not exceeding 1,100°C. If during the testing of these pipes by the D method, the corrosion rate exceeds 1.0 g/m^2·hr they should be used as blanks for cold rolling. Welded 1Kh18N9T steel pipes with about 0.1% C, are as a rule, prone to intercrystalline corrosion. There are 8 figures and 1 table.

ASSOCIATION: Dnepropetrovskiy nauchno-issledovatel'skiy trubnyy institut
(Dnepropetrovsk Scientific-Research Institute of Pipes)

SUBMITTED: July 13, 1962

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

S/125/63/000/004/008/011
D040/D112

AUTHORS: Chemadurova, Ye.Yu., and Yakovleva, G.N.

TITLE: Effect of cold deformation on the tendency to intercrystalline corrosion in welded pipes of OKh18N9T steel

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1963, 73-77

TEXT: The effect of cold deformation on the tendency to intercrystalline corrosion was tested in specimens of pipes produced by argon arc welding of ОХ 18Н 9Т (OKh18N9T) steel strips which were then cold rolled. The specimens were heat-treated both before and after the rolling, which was performed with various degrees of reduction. The three melts of OKh18N9T steel used for the experiments had the following composition:

(%)	C	Cr	Ni	Mn	Ti	P	S	Si
A	0.08	17.95	10.47	1.25	0.43	0.027	0.009	0.35
B	0.10	17.66	10.05	1.44	0.53	(Was not determined)		
C	0.061	17.8	10.2	1.35	0.61 (0.23 total bound)	(" "		0.73

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Effect of cold deformation on . . . S/125/63/000/004/008/011
D040/D112

Interorystalline corrosion tests were standard, in boiling 65% (mass concentration) nitric acid. The results of the experiments proved that rolling welded pipe blanks with a 40 to 60% reduction makes the weld metal resistant to interorystalline corrosion, while lower reduction degrees had no such effect. Increasing the carbon content to 0.1% intensified the corrosion. There are 4 figures and 4 tables.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut
(Ukrainian Scientific Research Institute of Pipes)

SUBMITTED: July 13, 1962

Card 2/2

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SHCHESNO, L.P.; CHEMADUROVA, Ye.Yu.; YAKOVLEVA, G.N.; BRECHKEVICH, V.V.

Methods of determining resistance to intercrystallite corrosion of electrically welded pipes. Avtom. svar. 16 no.7:90-94 Jl '63. (MIRA 16:8)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut.
(Pipe, Steel--Corrosion)
(Steel, Stainless--Corrosion)

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L 8636-65 EWT(m)/EWP(w)/T/EWP(k)/EWP(b) Pf-4 RAEM(t) MJW/JD/HW/WB

ACCESSION NR: AP4041863 S/0125/64/000/007/0079/0082

AUTHOR: Donskoy, O. V. (Engineer); Chemadurova, Ye. Yu. (Engineer); Yakovleva, G. N. (Engineer)

TITLE: Effect of electrohydraulic finishing on the tendency of OKh18N10T steel pipes toward intergranular corrosion

SOURCE: Avtomaticheskaya svarka, no. 7, 1964, 79-82

TOPIC TAGS: electrohydraulic finishing, OKh18N10T steel, intergranular corrosion, welding, weld surface finishing, milling, heat treating, metal electroprocessing, microstructure

ABSTRACT: It was found that finishing the external surface of welds by the electrohydraulic method reduced the intergranular corrosion of the welded pipes as tested by the AM and D (GOST 6032-58) methods. The method used has been described by A. L. Vishintskiy (Novoye v razmeroy elektroobrabotke metallov "Innovations in the Electric Discharge Machining of Metals," TDNTP, L. 1962). In this electrohydraulic method the pipe is passed through a mounted multistage cathode at a speed as high as 2 m/min.; and the outer layer of the weld is removed at a high current density in conjunction with a high rate of

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ACCESSION NR: AP4041863

electrolysis. Comparative tests between the electrohydraulic removal and milling (with a hard-wire brush) of the welded seams were run on OKh18N10T steel pipes prepared for the AM test by annealing at 1080C for 10 min. followed by quenching and holding at 650C for 2 hours, and for the D test by annealing at 1050 and 1100C for 10 min. followed by quenching. The microstructure of the surface of the milled welds showed ruptures and physical defects which tend toward intergranular corrosion. Electrohydraulic treatment eliminated these defects leaving a smooth clean surface. In the AM test, when the Ti/C ratio in the weld after heat treatment was 4, no corrosion was observed. In the D test the corrosion rate of the metal annealed at 1050C was about the same in the first cycle for the milled and the electrohydraulically finished pipes, and was progressively increased in the second and third cycles in the milled pipes; the corrosion rate of the metal annealed at 1100C and subjected to the electrohydraulic finishing was about one-half that of the milled pipes. Orig. art. has: 3 tables and 4 figures.

ASSOCIATION: Ukrainskiy nauchno-issledovatel'skiy trubnyy institut (Ukrainian Scientific-Research Pipe Institute)

SUBMITTED: 30Sep63 ENCL: 00 SUB CODE: MM
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CHEMAGIN, V. S.

USSR

V Dipolar ions formed on cleavage of a proton from an NH group. VIII. Sulfonium compounds. A. M. Simonov and V. S. Chemagin (Moscow Textile Inst.). *Sbornik Statei Obshchei Khim.* 2, 1382–6(1953); cf. *C.A.* 47, 9328g. Bipolar ions, such as *p*-$MeC_6H_4SC_6H_4NR$ (I) are described. A similar structure is given to previously described derivs. of phenothiazine and 1,2,7,8- and 3,4,5,6-dibenzophenothiazines (cf. Kehrmann and Dardel, *C.A.* 17, 767). Heating 1.5 g. 4-methylthio-2',4'-dinitrodiphenylamine and 1 g. *p*-$MeC_6H_4SO_2Me$ 2 hrs. at 140–5° gave after treatment with hot C_6H_6 2.1 g. *dimethyl[4-(2,4-dinitroanilino)phenyl]sulfonium p-toluenesulfonate*, yellow, m. 150.5–60° (from MeOH). Treated with dil. NaOH or 25% NH_4OH, this gives a red ppt. of I (R = *2,4-dinitrophenyl*), decomp. 143–51° (from 70% EtOH). To *p*-thioanisidine and NaOAc in EtOH was added picryl chloride (equimolar amt.), yielding after 0.25 hr. reflux red *4-methylthio-2',4',6'-trinitrodiphenylamine*, m. 150.5–1° (from EtOH-C_6H_6). This heated with *p*-$MeC_6H_4SO_2Me$ 2 hrs. at 140° gave *dimethyl[4-(picrylamino)phenyl]sulfonium p-toluenesulfonate*, yellow, m. 167–8.5°, which with 2*N* KOH yields the deep red I (R = *picryl*), decomp. 103–7°. Treatment of *p*-thioanisidine in pyridine with β-anthraquinonesulfonyl chloride gave after several days the yellow *p-thiomethoxyanilide* of *β-anthraquinonesulfonic acid*, m. 209–9.5° (from $PhNO_2$), which with *p*-$MeC_6H_4SO_2Me$ gave *dimethyl[4-(β-anthraquinonesulfamido)phenyl]sulfonium p-toluenesulfonate*, yellowish, decomp. 195° (dihydrate forms from 75% EtOH), which with NaOH, Na_2CO_3 or NH_4OH yields orange I (R = *β-anthraquinonesulfonyl*), m. 175–80°, which with HCl forms a sparingly sol. HCl salt. *p*-Thioanisidine and *p*-toluenesulfonyl chloride in pyridine gave *4-(p-toluenesulfamido)thioanisole*,

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SIMONOV, A. M.

m. 111–11.5°, which fused with p-$MeC_6H_4SO_3Me$ at 135° 1 hr. gave colorless *dimethyl[4-(p-toluenesulfamido)phenyl]-sulfonium p-toluenesulfonate*, m. 180–1.5°. IX. Compounds of benzimidazole series. A. M. Simonov and F. A. Mendelevich. *Ibid.* 1387–93.—5-Amino-1-phenylbenzimidazole with p-$MeC_6H_4SO_2Cl$ in pyridine gave *5-(p-toluenesulfonamido)-1-phenylbenzimidazole*, m. 243.5–4.5° (from EtOH). This fused with p-$MeC_6H_4SO_3Me$ 1 hr. at 130–40° gave *5-(p-toluenesulfamido)-1-phenylbenzimidazole Me p-toluenesulfonate*, m. 192–3° (from MeOH-Et_2O). This (1.83 g.) in 50% EtOH treated with 4 ml. 5% NH_4OH gave a ppt. of the *base*, colorless solid, which kept over P_2O_5 changes to the betaine which is sparingly sol. (in the form of the base) in hot H_2O; the product, *5-p-toluenesulfamido-1-phenylbenzimidazole Me betaine* (I), decomp. 250°; it readily adds 2 mols. H_2O in contact with moisture. Heating picryl chloride with 5-amino-1-phenylbenzimidazole in EtOH-NaOAc gave yellow or red form of *5-picrylamino-1-phenylbenzimidazole*, yellow form, m. 239.5–40.5° (decompn.); the red form changes to yellow on heating. This fused with p-$MeC_6H_4SO_3Me$ at 130–5° gave *5-picrylamino-1-phenylbenzimidazole Me p-toluenesulfonate*, yellow, decomp. 229–30°, which treated with aq. NH_4OH or 2*N* NaOH in aq. MeOH gave a red ppt. of *5-picrylamino-1-phenylbenzimidazole Me betaine*, $C_{20}H_{13}O_6N_6$, blackening at 200°, does not m. up to 305°; with dil. HCl, it forms yellow HCl salt. Fusion of *5-(2,4-dinitrophenylamino)-1-phenylbenzimidazole* with p-$MeC_6H_4SO_3Me$ gave the yellow *quaternary salt*, m. 157.5–9.5°, which, in 50% EtOH, treated with a little NH_4OH at 60°, followed by 2*N* NaOH gave a brown-red ppt. which changed to the orange-yellow *pseudobase* II (R = H), m. 164.5–5.5°. Crystn. from C_6H_6 gave a very dark red product contg. 1 mol. C_6H_6, the latter being lost on standing or on heating *in vacuo*. Crystn. from Me_2CO gave a product, m. 166.5–7.5°. Heating this pseudobase with a

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SIMONOV, A.M

small excess *p*-$MeC_6H_4SO_3H$ gives the original quaternary salt, m. 157.5–9.5°. The pseudobase reacts very little with dil. AcOH, and dissolves slowly in HCl on heating, while a cooled soln. deposits *5-(2,4-dinitrophenylamino-1-phenyl-benzimidazole methochloride*, orange-yellow, decomp. 268–70°. The pseudobase does not react with PhNCO nor with BzCl alone; with BzCl in pyridine after 3 days in the cold it gave an orange-yellow product, decomp. 267–70°, which contained ionic Cl and which gave the original pseudobase with Na_2CO_3; the product was identical with the methochloride from the pseudobase. Probably the pseudobase first formed an onium adduct with BzCl, which then was transformed to the methochloride. 2,4-Dinitrochlorobenzene with 5-amino-1-phenyl-2-methylbenzimidazole gave *5-(2,4-dinitrophenylamino)-1-phenyl-2-methylbenzimidazole*, orange crystals (contg. C_6H_6), which after heating *in vacuo* turn yellow and m. 238–8.5°; the *Me p-toluenesulfonate*, yellow, decomp. 231–2° (from MeOH), treated in 50% EtOH with a little NH_4OH followed by 2*N* KOH gave a red ppt. which then turned brown-orange, identified as the pseudobase III (R = Me), which with C_6H_6 gave 20% *betaine*, red solid, m. about 250°, sol. in dil. AcOH and HCl. Evapn. of the C_6H_6 soln. gave an orange-yellow *pseudobase*, decomp. 206–7° (in case of slow heating the product does not m. up to 300°), $C_{28}H_{18}O_4N_8$, insol. in dil. AcOH, and sol. in dil. HCl only on heating.

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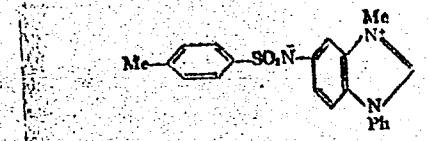
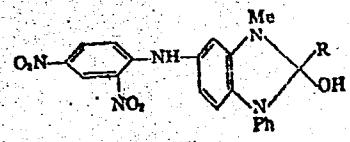
SIMONOV, A. M.



(I)



(II)

G. M. Kosolapoff

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMAGINA, P.F.; GORLOV, P.I.

Processing of viscose and cuprammonium fibers in the hemp and jute industry. Izv.vys.ucheb.zav.; tekh.tekst.prom. no.6:56-63 '62. (MIRA 16:2)

1. Moskovskiy tekstil'nyy institut.
(Burlap) (Rayon spinning)

APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2"

"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMAGINA, P.F.

Burlap fabrics with a new structure and their service characteristics. Izv.vys. ucheb. zav.; tekh. tekst. prom. no.6: 87-94 '63 (MIRA 17:8)

1. Moskovskiy tekstil'nyy institut.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHERAGINA, P.F.

Crush-bursting test of loaded [illegible] bags. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.4:24-28 '64. (MIRA 17:12)

1. Moskovskiy tekstil'nyy institut.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMAKIN, G.M., inzh.

Claylike concrete pavements. Avt. dor. 28 no.2:20 F '65. (MIRA 18:6)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMARDA, Major

AID P - 1552

Subject : USSR/Aeronautics

Card 1/1 Pub. 135 - 5/18

Authors : Bulatov, A., Col., Dotsent, Kand. of Tech. Sci., Chemarda, Major, Arutnyunov, V., Guards Lt.Col.

Title : Reaching the target at a given time

Periodical : Vest. vozd. flota, 2, 25-35, F 1955

Abstract : The author discusses the following topics: 1. disparity of the true ground speed and the computed speed, 2. measurement of the length of the route in flight, 3. reaching the target at a given time by speed adjustment, 4. reaching the target at a given time by altering the prescribed route in order to lose excess time. Graphs, diagrams, formulae, examples.

Institution: None

Submitted : No date

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

ROSHCHIN, A.N., inzh.; CHIMARIN, N.G., kand. tekhn. nauk

Hydromechanical pulsator for extraction towers. Khim. i neft. mashinostr. no.2:7-9 Ag '64 (MIRA 18:1)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

KARPACHEVA, S.M., doktor khimich. nauk; CHEMARIN, N.G., kand.tekhn.nauk; BYCHKOV, A.Ye., inzh.; ZAKHAROV, Ye.I., inzh.; DEVYATKIN, V.I., inzh.; ZHDANOV, B.V., inzh.

Study of the operation of a pulsating extraction sieve plate column. Khim. i neft. mashinostr. no.1:24-27 Ja '65. (MIRA 18:3)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

S/169/63/000/001/039/062
D263/D307

AUTHORS: Vol'fson, N.B., Chembarisov, Sh.A. and Chistyy, B.I.

TITLE: An attempt at the application of geochemical and geophysical methods to the prospecting for gold-bearing mineralization in Uzbekistan

PERIODICAL: Referativnyy zhurnal, Geofizika, no. 1, 1963, 9, abstract 1D49 (Byul. nauchno-tekhn. inform. M-vo geol. i okhrany nedr SSSR, 1962, no. 1 (35), 52-56)

TEXT: Gold-prospecting was carried out on the Western outskirts of the Turkestan Range. On the basis of the results obtained, it is recommended that analogous prospecting should be carried out in three stages: (1) Metallometric and magnetic surveying to a scale of 1:50,000, or more closely in regions offering a better change of containing gold. The aim of these surveys is to plot the contours of intrusions and to isolate from their exo-contact zones the more promising plots by the dispersion aureoles of indicator metals. It was found that in the case of prospecting for gold-bearing deposits

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An attempt at the application ...

the following metals may be regarded as indicators: As, Ag, Pb, Zn, Cn, Co, W (in this order). Aureoles of these metals in the north-western part of the region studied overlap with each other, forming complex fields. (2) Assessment of the anomalous plots isolated in this way, by confirmatory traverses, collecting samples to be analyzed for Au and testing concentrates. The aim of this stage is to define the most promising plots on which (3) detailed aurimetric surveys may be carried out, on a scale of 1:10,000, electroprospecting (the ИЖ (IZh) method, combined and symmetric profiling) and assaying the concentrates. The results of detailed investigations are checked by small-scale mining. A preliminary assessment of the isolated gold ore is given, and the advisability of starting surveying work is determined.
[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMBARISOV, Sh.A.

Practice in the separation of tectonic structures according to the results of high-precision aeromagnetic surveying in the central part of the Northern Nuratau. Uzb. geol. zhur. 9 no.5:37-43 '65. (MIRA 18:11)

1. Uzbekskiy geofizicheskiy trest. Submitted March 17, 1965.

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PUSHKIN, P.; YAKIMENKO, A.; CHEMBAROV, M.; MARKIN, S.

Labor productivity indices in the artificial leather industry. Biul.nauch.inform: trud i zar.plata 3 no.7: 9-15 '60. (MIRA 13:8)

(Leather, Artificial)
(Labor productivity)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PUSHKIN, P.S., kand.tekhn.nauk, dotsent; YAKIMENKO, A.D., inzh.; POLYAKOVA, L.N., inzh.; CHEMBAROV, M.I., inzh.

Theoretical measurement of production volume in rubber sole factories. Izv.vys.ucheb.zav.; tekh.leg.prom. no.6:13-22 '61. (MIRA 14:12)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi. Rekomendovana kafedroy ekonomiki promyshlennosti i organizatsii proizvodstva Kiyevskogo tekhnologicheskogo instituta legkoy promyshlennosti.
(Boots and shoes, Rubber)
(Production standards)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PUSHKIN, P.S., kand.tekhn.nauk, dotsent; YAKIMENKO, A.D., inzh.; CHEMBAROV, M.I., inzh.; MARKIN, S.S., inzh.; PARASHINA, T.G., inzh.; ALEKSEYEVA, N.N., inzh.; POLYAKOVA, L.N., inzh.

Labor productivity potentials and growth factors in the artificial leather industry during the current seven year period. Izv.vys.ucheb.zav.;tekh.leg.prom. no.2:31-38 '62. (MIRA 15:5)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut plenochnykh materialov i iskusstvennoy kozhi. Rekomendovana kafedroy ekonomiki promyshlennosti i organizatsii proizvodstva Kiyevskogo tekhnologicheskogo institut[illegible] promyshlennosti.
(Leather industry--Labor productivity)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

PUSHKIN, P.S.; TOLKACHEVA, L.P.; CHEMBAROV, M.I.

Production cost norms are the index of the volume of production and labor productivity in artificial leather factories. Kozh.-obuv.prom. 5 no.3:8-11 Mr '63. (MIRA 16:3)
(Artificial leather) (Productivity accounting)

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"APPROVED FOR RELEASE: 06/12/2000 CIA-RDP86-00513R000308320012-2

CHEMBARTSEV, A.P.

Introducing over-all mechanization in mines. Ogneupory 25 no.11:501-505 '60. (MIRA 13:12)

1. Semilukskiy ogneupornyy zavod.
(Mining machinery)

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