USSR

UDC: 511.444.2+548.1

DELONE, B. N., Corresponding Member of the Academy of Sciences of the USSR, GALIULIN, R. V., DOLBILIN, N. P., ZALGALLER, V. A., SHTOGRIN, M. I., Mathematics Institute imeni V. A. Steklov, Academy of Sciences of the USSR, Moscow

"On the Three Successive Minima of a Three-Dimensional Lattice"

Moscow, Doklady Akademii Nauk SSSR, Vol 209, No 1, Mar/Apr 73, pp 25-28

Abstract: Let OA be the shortest vector of the three-dimensional lattice Λ, OB -- the shortest vector of Λ not parallel to OA, and OC -- the shortest vector of Λ not parallel to plane OAB. Three such vectors are called the three successive minima of Λ, and the parallelepiped Π constructed on these vectors is called a reduced parallelepiped.

Theorem 1. The reduced parallelepiped Π is primitive (empty).

This theorem was first geometrically proved by Dirichlet in 1848. This proof has always seemed somewhat complicated to crystallographers, and therefore N. V. Belov proposed a new proof in 1951. In this paper, the authors offer a still simpler proof, and propose an algorithm for reducing three successive minima to a single parallelepiped.

1/1

1/2 008 UNCLASSIFIED PROCESSING DATE--09OCT70

TITLE--COMPLEXING IN AN IRON(III),DIANTIPYRYLMETHANE SYSTEM STUDIED BY A METAL INDICATOR METHOD -U-

AUTHOR--SHTOKALO, M.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. KHIM. ZH. 1970, 36(1), 13-16

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--DISSOCIATION CONSTANT, COMPLEX COMPOUND, IRON COMPOUND, CALCULATION

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1992/1984 STEP NO--UR/0073/70/036/001/0013/0016

CIRC ACCESSION NO--AP0112948

UNCLASSIFIED

2/2 008 UNCLASSIFIED

CIRC ACCESSION NO--AP0112948 PROCESSING DATE--09OCT70

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE DISSOCN. CONST. FOR (FE (DIANT) SUB2) PRIME3 POSITIVE (DIANT EQUALS DIANTIPYRYLMETHANE) BASED ON COMPETITION EXPTS. WITH XYLENOL ORANGE AND F PRIME NEGATIVE IN 0.1 MU HNO SUB3 IS 9.7 TIMES 10 PRIME NEGATIVE8. BY USING THE PREVIOUSLY DETD. 1ST DISSOCN. CONST., THE 2ND IS CALCD. TO BE 5.1 TIMES 10 PRIME NEGATIVE4.

FACILITY: INST. OBSHCH. NEORG. KHIM., KIEV, USSR.

UNCLASSIFIED

USSR

UDC 621.735.043.016.3:669.14.018.252.3

CHERNYY, YU. F., ALISTRATOV, L. I., BEREZIN, A. A., GALKIN, A. A., KOVIKO, V. S., KULIKOV, N. I., SPUSKANYUK, V. Z., and SHTOKMAN, A. D.

"Industrial Introduction of Technique of Hydropressing of Tool Billets From Steels R18, R12, R9"

Moscow, Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Abstract: Experimental investigations at Dnepropetrovsk Physicotechnical Scientific Research Institute, Academy of Sciences Ukrainian SSR, showed that the cold plastic deformation of billets of high-speed steels R18, R12, and R9 by the hydropressing method results in significant refinement and more uniform distribution of the carbide phase. Investigations of R18 steel billets following hydropressing, annealing, and heat finishing showed an increase in the mechanical properties and thermostability of the steel, while production tests of 10-mm-diameter reamers showed a 60-70 percent increase in tool durability. Hydropressing of cylindrical round-section billets from R18, R12, and R9 bars up to 30 mm in diameter has been introduced at one of the

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CHERNYY, YU. F., et al., Kuznechno-Shtampovochnoye Proizvodstvo, No 8, Aug 71, pp 11-12

Donetskaya Oblast plants. A model P479 hydraulic press is used for billet deformation. The hydropressing setup consists of a high-pressure multilayer container, rod and die with gasketing, an upper and lower plate, and a centerer and fastener. The tool billet hydropressing process provides for the preparation of initial billets, straining of the billets, and their subsequent treatment. Kh12M steel (HRC 57-59) is used for the die. The economic advisability of using the technique of high-speed steel hydropressing for the fabrication of tool billets is based mainly on the increased tool durability as a result of the improved structure and physicomechanical properties of the steel after deformation. There is a saving in high-speed steels because the billet comes as close as possible to the tool size.

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USSR

UDC: None

ZELEVINSKIY, V. G. and SHTOKMAN, M. I., Institute of Nuclear Physics, Siberian Department.

"Moment of Inertia in the Microscopic Theory of Nuclear Rotation"

Moscow, Izvestiya Akademii Nauk SSSR--Seriya Fizicheskaya, No 12, 1972, pp 2577-2584

Abstract: The authors use the method of an earlier paper (S. T. Belyayev, et al, Yadernaya fizika, 11, 1960, p 741) to consider quantum corrections for the cranking model, the basic method for examination of microscopic rotational excitation, thus clarifying deviations from the theory and improving agreement with experimental results. The authors find it convenient to introduce the generalized space of the states specified by the collective band characteristics--the moment of inertia, its projection on the laboratory axis and on the inner axis, and the single frequency quantum numbers. The rotational parameters are found by using the condition of moment matching, and it is noted that expressions deduced for the derivatives of the moment of inertia agree with those of earlier theoretical works. A table of the quantum corrections

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USSR

UDC: None

ZELEVINSKIY, V. G., et al, Izvestiya Akademii nauk SSSR--Seriya fizicheskaya, No 12, 1972, pp 2577-2584

is compiled. It is concluded that the theory advanced in this paper offers a complete quantitative description for the energy behavior of the lower portion in the basic band of even-even nuclei. The authors express their gratitude to S. T. Belyayev and V. B. Telitsin for their comments.

2/2

USSR

Beryllium

USSR

(1)

UDC 669.725'794-541.134

BUTOROV, V. P., NICHKOV, I. F., NOVIKOV, YE. A., RASPOPIN, S. P., and SHTOL'TS, A. K., Ural Polytechnic Institute, Department of the Metallurgy of Rare Metals

"Thermodynamics of Beryllium-Yttrium Alloys"

Ordzhonikidze, Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 86-89

Abstract: Tests on determining the thermodynamic magnitudes of Y-Be alloys was reduced to a study of the electromotive force of the galvanic element which was determined as the difference

$$\mathcal{E} = \varphi_{alloy} - \varphi_{Y},$$

where φ_{alloy} and φ_{Y} are the equilibrium potentials of the alloy and metallic equilibrium, respectively, relative to the chlorine electrode of comparison. From measurements of the emf of Y-Be alloys containing from 4.1 to 40.8 wt% Y, it was found that there is a direct relationship of alloy emf to Kelvin temperature. Tables were compiled from experimental data which showed the activity and coefficients of activity of yttrium and Be-Y alloys and thermodynamic

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USSR

(1)

BUTOROV, V. P., et al., Izvestiya Vysshikh Uchebnykh Zavedeniy--Chernaya Metallurgiya, No 4, 1973, pp 86-89

properties of alloy YBe_{13}. From x-ray phase analysis of the studied alloys it was established that they consist of two phases: the intermetallic compound YBe_{12} and pure beryllium. 1 figure, 3 tables, 4 bibliographic references.

2/2

- USSR

UDC: 539.4:624.011

UL'YANOV, S. V. and SHTCL', A. M.

"Statistical Analysis of Stability, and an Estimate of the Reliability of a Parametric System in Seismic Action"

V. sb. Materialy V Nauchno-tekhn. konferentsii molodykh spetsialistov. TsNII stroit. konstruktsiy (Materials V of the Scientific Technical Conference of Young Specialists. Central Scientific Research Institute of Building Construction-- collection of works) Moscow, 1970, pp 54-57 (from RZh-Mekhanika, No. 2, Feb 71, Abstract No. 2V952)

Translation: A short report devoted to the problem of forced structural oscillations in a movable system of coordinates, which moves ahead relative to an inertial coordinate system. The forward motion of the movable system is determined by functions which can be considered as stationary noncorrelated functions of time with zero average values and known statistical parameters (the law of distribution and the correlation functions are known). The problem of oscillations of rod construction in horizontal and vertical seismic motion of the foundation reduces to such a model. The hypothesis is assumed of stationary seismic action. The design

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USSR

UL'YANOV, S.V., et al, V. sb. Materialy V Nauchno-tekhn. konferentsii molodykh spetsialistov. TsNII stroit. konstruktsiy, 1970, pp 54-57 (from RZh-Mekhanika, No 2, Feb 71, Abstract No 2V952)

system is a rod of constant cross section and rigidity, with the mass concentrated at the end. It is assumed that: 1) The hypothesis of nonlinear viscous drag is valid; 2) The longitudinal forces of the inertial mass of the rod can be neglected; 3) The linear mass inertia to the end of the rod and the exponential nonlinear elasticity are taken into account; 4) Only the first form of the bending oscillations is considered. The problem is solved by two methods: 1) To the first approximation, by the method of stochastic differential equations, and 2) By using the apparatus of the Markov processes and the Fokker-Planck-Kolmogorov equations. The conclusion is that to estimate the motion of the system for small values of the excitation coefficient and to determine the stability of the system in the region of its parameters, it is convenient to use the first method; for a more complete statistical analysis, however, the second method must be used. V. A. Bykhovskiy

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USSR

UDC: 539.4:624.011

NIKOLAYENKO, N. A., SHTOL', A. T.

"Statistical Analysis and Evaluation of Parametric Systems Subjected to Seismic Effects"

Tr. TsNII stroit. konstruktsiy (Works of the Central Scientific Research Institute of Structural Elements), 1970, vyp. 14, pp 4-11 (from RZh-Mekhanika, No 7, Jul 71, Abstract No 7V863)

Translation: The authors consider the problem of forced oscillations of a structural element in the form of a rod of constant cross section and rigidity with a concentrated mass on the end in the case of horizontal and vertical seismic motion of the base. The equation of motion of the rod is derived by the Bubnov-Galerkin method. The nonlinear inertial properties of the attached mass and power-law nonlinear elasticity of the system are taken into account. Critical values of the coefficient of parametric excitation are determined in solving the equation by the method of stochastic differential equations. The boundaries of the regions of dynamic stability coincide for the average and root-mean-square values of amplitudes. In solving the problem by the Fokker-Planck-Kolmogorov method, the

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NIKOLAYENKO, N. A., SHTOL', A. T., Tr. TsNII stroit. konstruktsiy, 1970, vyp. 14, pp 4-11

motion of the system was assumed to be close to quasiharmonic with slowly varying amplitude and phase. The probability density functions and the first three moments of motion of the system are found. It is shown that the region of dynamic instability differs from the boundaries found with simplifying assumptions. The concept of parametric stability of the system is related to the probability that the coefficient of excitation will not fall into the region of dynamic instability. L. Sh. Kilimnik.

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1/2 021 UNCLASSIFIED PROCESSING DATE--11SEP70

TITLE--POSSIBILITY OF ORDERED INTERMETALLIDE V SUB3 AL FORMATION -U-

AUTHOR--SHTOLTS, A.K., ZAGRYAZHSKIY, V.L., GELD, P.V., SURIKOV, V.I.

COUNTRY OF INFO--USSR

SOURCE--UKR. FIZ. ZH. (RUSS. ED.) 1970, 15(1), 118-19

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS

TOPIC TAGS--ORDERED ALLOY, VANADIUM ALLOY, CRYSTAL STRUCTURE, ALUMINUM CONTAINING ALLOY, X RAY DIFFRACTION ANALYSIS

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1989/1343

STEP NO--UR/0185/70/015/001/0118/0119

CIRC ACCESSION NO--AP0107816

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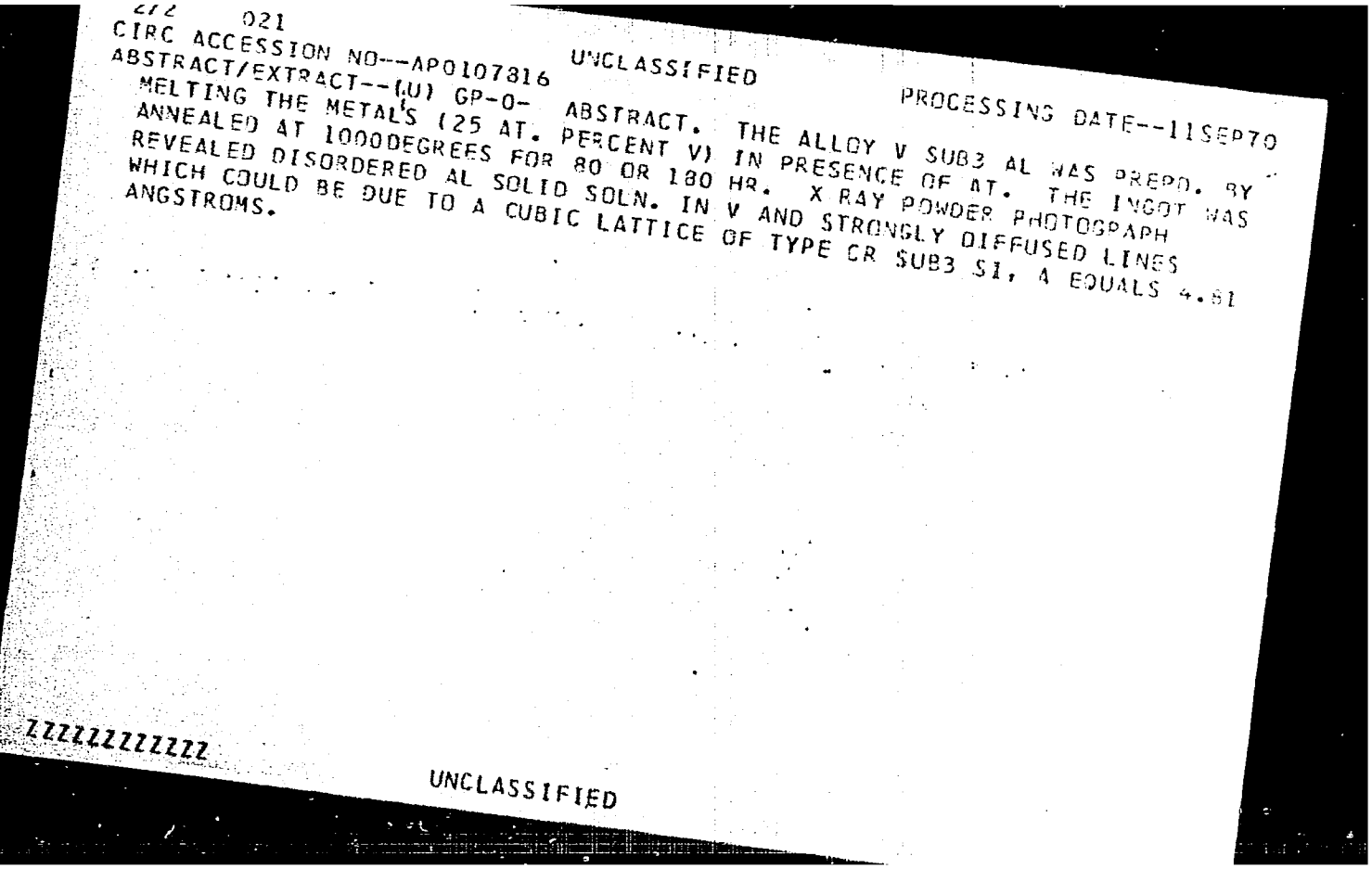

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UNCLASSIFIED
CIRC ACCESSION NO--AP0107816 PROCESSING DATE--11SEP70
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE ALLOY V SUB3 AL WAS PREPD. BY MELTING THE METALS (25 AT. PERCENT V) IN PRESENCE OF AT. THE INGOT WAS ANNEALED AT 1000DEGREES FOR 80 OR 180 HR. X RAY POWDER PHOTOGRAPH REVEALED DISORDERED AL SOLID SOLN. IN V AND STRONGLY DIFFUSED LINES WHICH COULD BE DUE TO A CUBIC LATTICE OF TYPE CR SUB3 SI, A EQUALS 4.61 ANGSTROMS.

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UNCLASSIFIED

USSR

UDC: 669.295.5:539.43

YELAGINA, L. A., DERYAGIN, G. A., SHTOVBA, Yu. K.

"Influence of Structure on Fatigue of VT8 and VT9 alloys"

Tekhnol. Legkikh Splavov. Nauch.-Tekhn. Byul. VILSa [Light Alloy Technology. Scientific and Technical Bulletin of All-Union Institute of Light Alloys], 1973, No 2, pp 56-63 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8I484, by the authors).

Translation: The fatigue limits σ_{-1} are determined at 20 and 500° with various types of loading for bars of the alloys VT8 and VT9 with various types of structure, including the "Moire" macrostructure, not studied earlier.

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USSR

UDC: 669.017:539.42

IVANOVA, V. S., KUDRYASHOV, V. G., SHTOVBA, Yu. K. KOPELIOVICH, B. A., Moscow

"Fractographic Study of the Rupture Toughness of Aluminum and Titanium Alloys"

Kiev, Problemy Prochnosti, No 11, Nov 72, pp 25-30.

Abstract: An electron microscope study of the surface of a crack is performed after cyclical deformations of various Al alloys and Ti alloys under pure bending with constant and gradually increasing stress, pure circular bending, repeated extension and cantilever circular bending. It is shown that the dimensions of the pits on the crack surface near hard second-phase particles correlate with the value of H_{T_s} (change in heat content of base of alloy with changing temperature from room temperature to the melting point). It is also established that the rupture toughness determined by the method of Ivanova and Kudryashov, under conditions of cyclical loading at the critical fatigue stress, is near the rupture toughness produced by the method of Irwin.

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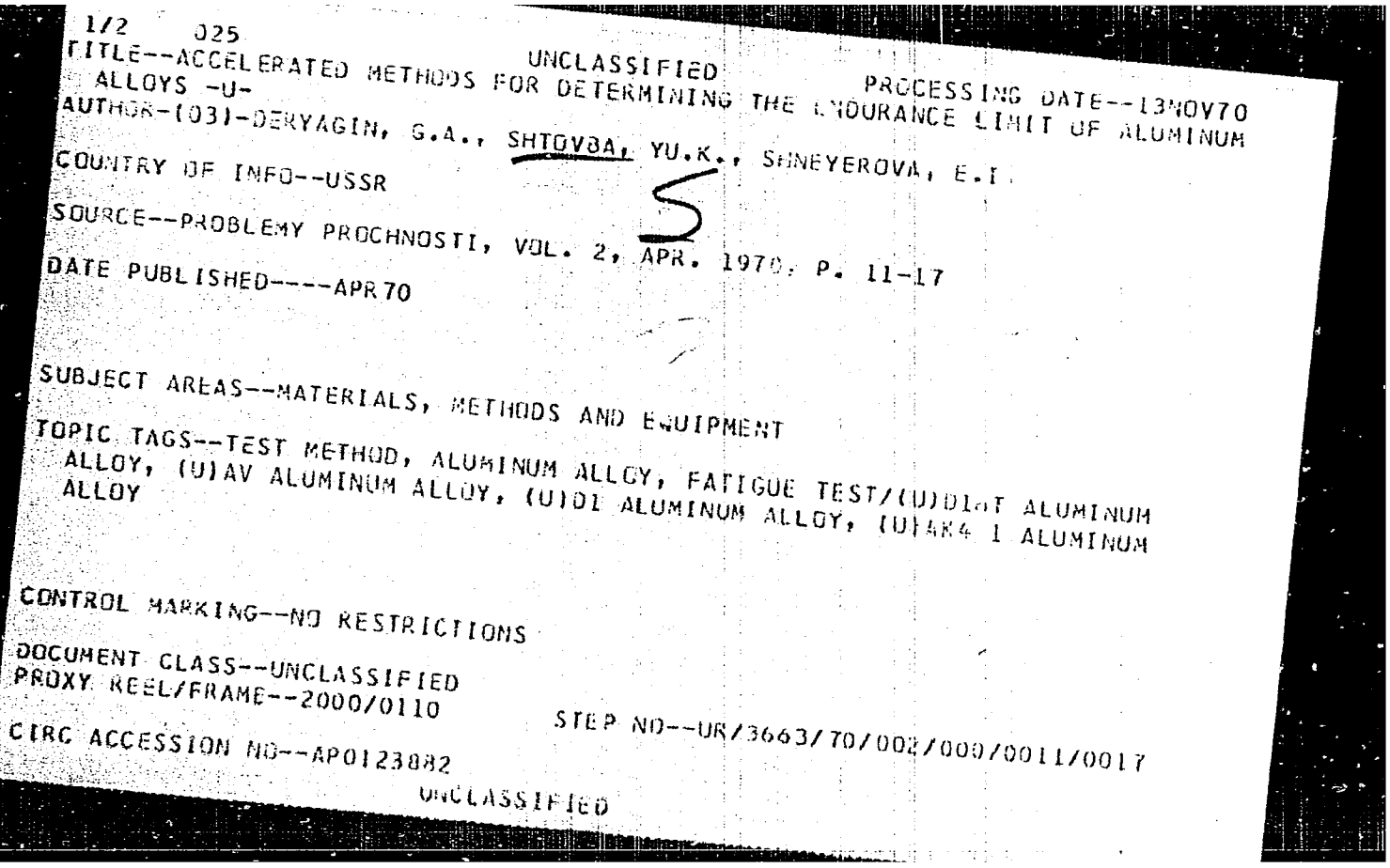

1/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70

TITLE--ACCELERATED METHODS FOR DETERMINING THE ENDURANCE LIMIT OF ALUMINUM ALLOYS -U-

AUTHOR-(03)-DERYAGIN, G.A., SHTOVBA, YU.K., SHNEYEROVA, E.I.

COUNTRY OF INFO--USSR

SOURCE--PROBLEMY PROCHNOSTI, VOL. 2, APR. 1970, P. 11-17

DATE PUBLISHED----APR70

SUBJECT AREAS--MATERIALS, METHODS AND EQUIPMENT

TOPIC TAGS--TEST METHOD, ALUMINUM ALLOY, FATIGUE TEST/(U)D16T ALUMINUM ALLOY, (U)AV ALUMINUM ALLOY, (U)D1 ALUMINUM ALLOY, (U)AK4 1 ALUMINUM ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0110 STEP NO--UR/3663/70/002/000/0011/0017

CIRC ACCESSION NO--AP0123882

UNCLASSIFIED

2/2 025 UNCLASSIFIED PROCESSING DATE--13NOV70

CIRC ACCESSION NO--AP0123882

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. EVALUATION OF THE MOST RELIABLE ACCELERATED METHODS FOR DETERMINING THE ENDURANCE LIMIT OF ALUMINUM ALLOYS, D16T, AV, D1, AND AK4-1 UNDER DIFFERENT LOADING CONDITIONS. FATIGUE TESTS WERE CARRIED OUT USING SMOOTH SAMPLES AND SAMPLES WITH STRESS RAISERS. ERRORS COMMITTED IN DETERMINATION OF THE ENDURANCE LIMIT BY ACCELERATED METHODS WERE EVALUATED BY COMPARING THE RESULTS WITH THOSE OBTAINED BY CONVENTIONAL, LONG TERM METHODS.

FACILITY: VSESOIUZNYI INSTITUT LEGKIKH SPLAVOV, MOSCOW, USSR.

UNCLASSIFIED

Acc. Nr: AP0048288 Abstracting Service: CHEMICAL ABST. 5-70 Ref. Code: UR0472

S

103183c Evaluation of technological variations for refining alloy AK4 based on rapid fatigue testing. Dervagin, G. A.; Savel'eva, T. P.; Shtovba, Yu. K.; Shneerova, E. I. (USSR). *Fiz. Khim. Obrabt Mater.*, 1970, (1), 155–7 (Russ). The fatigue limit was detd. for Al alloy AK4 samples, refined by 6 technological procedures, a rapid testing method which allowed the investigation of ~60 samples to be completed within 10 days with a high accuracy. The samples prepd. by vacuum refining had the best endurance properties.
V. Machacek

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REEL/FRAME
19792010

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UDC 669.14:539

IVANOVA, V. S., KUDRYASHOV, V. G., DERYAGIN, G. A., SHTOVBA, YU. K., Institute of Metallurgy, Academy of Sciences USSR, Moscow

"Comparison of the Breakdown Viscosity K_{1c} of Aluminum (AK4-1T1, V95T1, D16T) and Titanium (VT8, VT9) Alloys Under Static and Cyclic Loads"

Kiev, Problemy prochnosti, No. 5, May 72, pp 29-35

Abstract: Aluminum and titanium alloys were studied to determine the breakdown viscosity of structural materials both under static (K^s_{1c}) and under cyclic (K^c_{1c}) loading and also to show the optimal conditions for fatigue tests when $K^s_{1c} = K^c_{1c}$. It is noted that the problem of brittle fracture of materials is now receiving much attention and that a new breakdown characteristic K_{1c}, the breakdown viscosity of the material under plane deformation conditions, which characterizes the residual strength of material in the presence of cracks, has been introduced into calculations in connection with large-scale metal structures. It is difficult to determine the breakdown viscosity K_{1c} of materials of medium strength, such as

IVANOVA, V. S., et al, Problemy prochnosti, No. 5, May 72, pp 29-35

structural aluminum alloys, according to linear breakdown mechanics; this requires tests of samples of extremely large dimensions and hence it is important to study the possibility of determining K_{1c} on the basis of fatigue tests of samples by a method proposed previously by Ivanova and Kudryashov. This avoids many difficulties associated with tests under static loading, such as the application of sharp cuts, the growth of fatigue cracks, and assuring conditions for plane deformation. Pressed profiles of cross section 60 x 80 and 65 x 200 mm^2 and bars of diameter 18 mm of AK4-1T1 alloy, pressed plates of cross section 35 x 250 mm^2 of V95T1 alloy and rods of diameter 18 and 60 mm of V95T1 alloy, pressed plates of cross section 42 x 250 mm^2, a panel of thickness 38 mm and rods of cross section 50 x 60 mm^2 and of diameter 18 mm of D16T alloy, pressed rods of diameter 18 mm of D1T, AVT1 and AMg6 alloys, pressed profiles of titanium alloys VT8 and VT9 and rods of diameter 35 mm of VT9 alloy in the annealed state were investigated. It was found that materials can be evaluated from the aspect of breakdown viscosity on the basis of fatigue tests and that the form of the load, the cycle and the load spectrum do not play a considerable role. The only condition for the best convergence of estimates of K^{β}_{1c} and K^{σ}_{1c} is that the stress correspond to the critical fatigue stress. Analysis of test data on fatigue under bending and stretching of cylindrical samples of the aluminum and titanium alloys showed that the breakdown viscosity K^{β}_{1c} under static loading as

USSR

IVANOVA, V. S., et al, Problemy prochnosti, No. 5, May 72, pp 29-35

determined by the Irwin method and the breakdown viscosity K^c_{1c} under cyclic loading as determined by the Ivanova and Kudryashov method are close to one another at the critical fatigue stress. It was also shown that it is possible to determine K^c_{1c} at high temperatures on the basis of fatigue tests of samples using the relationships of linear mechanics considering the length of the fatigue crack.

USSR

UDC: 621.317.755(088.8)

GRITSAK, D. I., GUDYK, V. I., KHALAVKA, I. I., SHTOYKO, L. V.

"A Device for Intensifying the Beam of a Cathode Ray Tube"

USSR Author's Certificate No 278798, filed 29 Apr 69, published 8 Dec 70 (from RZh-Radiotekhnika, No 6, Jun 71, Abstract No 6A312 P)

Translation: This Author's Certificate introduces a device for intensifying the beam of a CRT tube. The device contains a tunnel diode flip-flop, transistorized amplifier and emitter follower with a diode shunting the base-emitter junction. As a distinguishing feature of the patent, delay of the positive front of the output pulse is reduced by connecting the output of the tunnel diode flip-flop to the base of an additional transistor with common emitter, the collector of this transistor being connected to the base of the amplification transistor. The base of the amplification transistor is also connected to the collector of a second additional transistor of opposite conductivity type. The base of this transistor is connected through diodes, resistors and capacitors to the input of the device and to the collector of the amplification transistor.

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USSR

UDC 621.313.322-81.013.8

ALEKSEYEVA, L. G., LAPAYEV, K. V., SHTRAFUN, YA. N., SHUSTERMAN, M. N.

"Study of the Excitation System of the 500 Megawatt Turbo Generator"

Elektrosila -- V sb. (Electric Power -- Collection of Works), No 28, Leningrad, Energiya Press, 1970, pp 15-18 (from RZh-Elektrotekhnika i Energetika, No 2, Feb 71, Abstract No 2 Ye124)

Translation: All-around testing of the TVV-500-2 turbo generator with an excitation system and an automatic excitation regulator have been performed. A more powerful subexciter with permanent magnets (30 kilowatts) has been used for the first time in the excitation system of the TVV-5-0-2 turbo generator to feed the automatic regulator, and the PP measuring element, to improve the speed of the system. The excitation system studies were performed in the idling and short circuit modes of the turbo generators. The characteristics of the excitation system obtained coincide closely with the calculated characteristics. There are 3 illustrations.

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AA 0 044276 UR 0482

Soviet Inventions Illustrated, Section II Electrical, Derwent, 1/70

243695 SYNCHRONOUS GENERATOR EXCITER UNIT in which the exciter itself is connected to an auxiliary a.c. generator on the same shaft as the synchronous generator 1. This simplifies construction and increases reliability. In order to broaden the range of regulatable circumstances, a controllable semi-conductor rectifier 6 is used as the exciter. 17.10.62. as 799210/24-7. Ya.N.SHTRAFUN et al. (29.9.69.) Bul.17/14.5.69. Class 21d^2. Int.Cl. H02p.

AUTHORS: Shtrafun, Ya. N., Alekseyeva, L. G., Lapayev, K. V.

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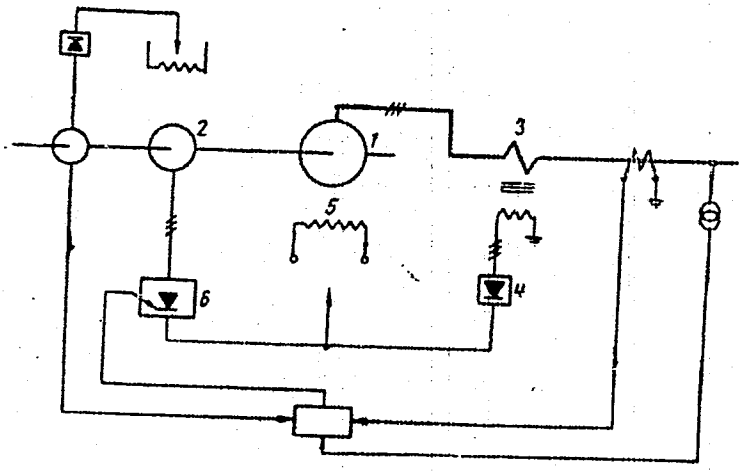

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USSR

UDC: 621.528:621.59

GORIN, V. P., SHUMSKIY, K. P., LEONOV, V. V., IVANOV, A. Ye., ZAKHAROV, V. S., SIVUSHCHKOV, B. P., KUPRIYANOV, V. I., RODIONOV, A. Kh., BARANOV, V. S., SHTRAKHMAN, A. Ya.

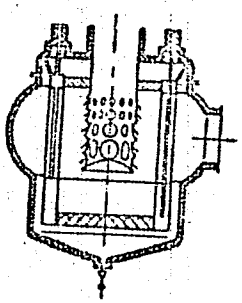
"A Cold Trap"

Moscow, Otkrytiya, Izobreteniya, Promyshlennyye Obraztsy, Tovarnyye Znaki, No 10, Apr 72, Author's Certificate No 332253, Division F, filed 9 Jan 69, published 14 Mar 72, pp 136-137

Translation: This Author's Certificate introduces a cold trap for vacuum pumps. The device contains a thermally insulated housing with fittings for connecting it to the exhausting vacuum pump and to the space being evacuated. Located in the housing are optically opaque cryogenic panels cooled by a liquid coolant such as nitrogen. As a distinguishing feature of the patent, the effectiveness of the trap is improved by making the cooled panels in the form of a vertical annular louvred screen with cooling tubes on the faces and collectors for the upper and lower shields located in the cavities of the louvred screen. The screen and shields taken together form a closed nonhermetic chamber which accommodates a dis-

JIN, V. P. et al., USSR Author's Certificate No 332253

Distributor pipe coaxial with the annular screen and passing through the upper shield. The lower end of the distributor pipe is closed off, and holes are made in the side wall which have a diameter increasing downward along the flow of the gas-vapor mixture. The flow channels between the louvres in the vertical screen increase in cross sectional area toward the periphery, and the upper and lower shields are made with a greater hydraulic drag than the vertical screen.



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USSR

SHTRAKHMAN, K. M., PIGUZOV, Yu. V., and LOGVINENKO, Yu. S. UDC 539.67

"Internal Friction and Isothermic Diffusion in a Copper-Zinc System"

Sb. "Vnutrenneye treniye v metallicheskikh materialakh" (Internal Friction in Metallic Materials), Moscow, Izd-vo "Nauka," 1970, pp 165-169

Abstract: With increasing time of diffusion isothermic annealing of copper (from 19 to 100 hours), peaks appear on the internal friction temperature dependence curves at 260, 290, and 330°C. The appearance of peaks is related to the relaxation process in γ- and ε-phases formed with isothermic diffusion, as well as in the α-solid solution. 3 figures, 4 references.

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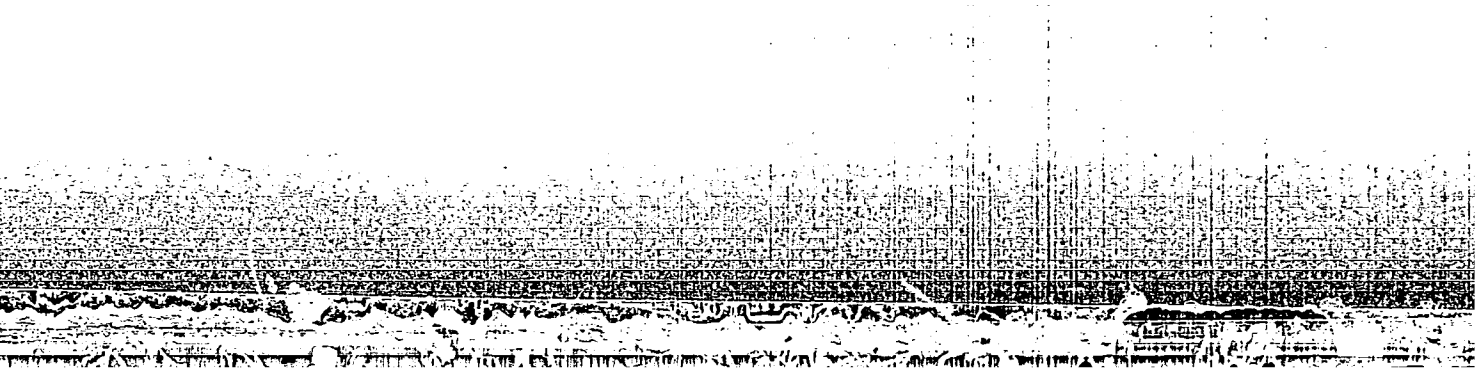

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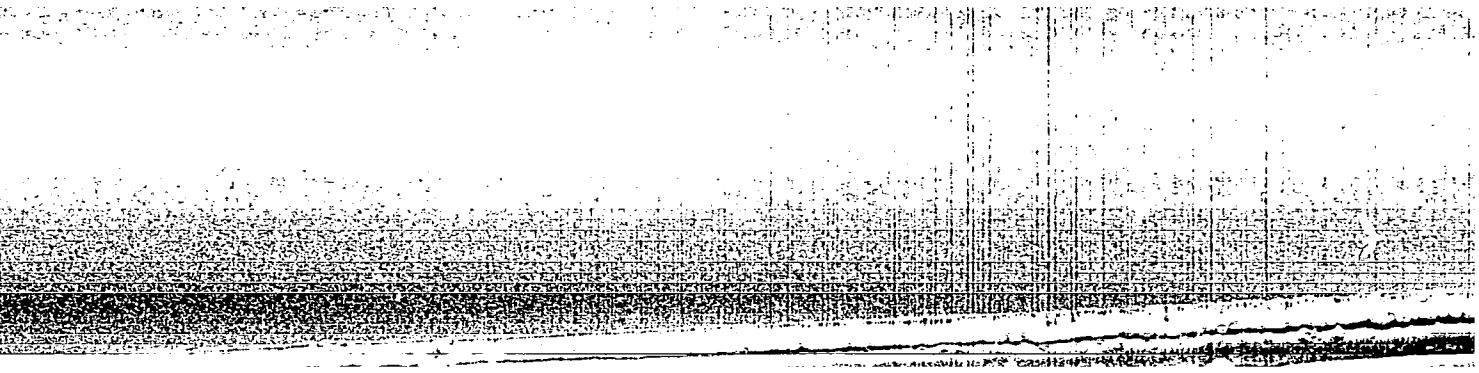

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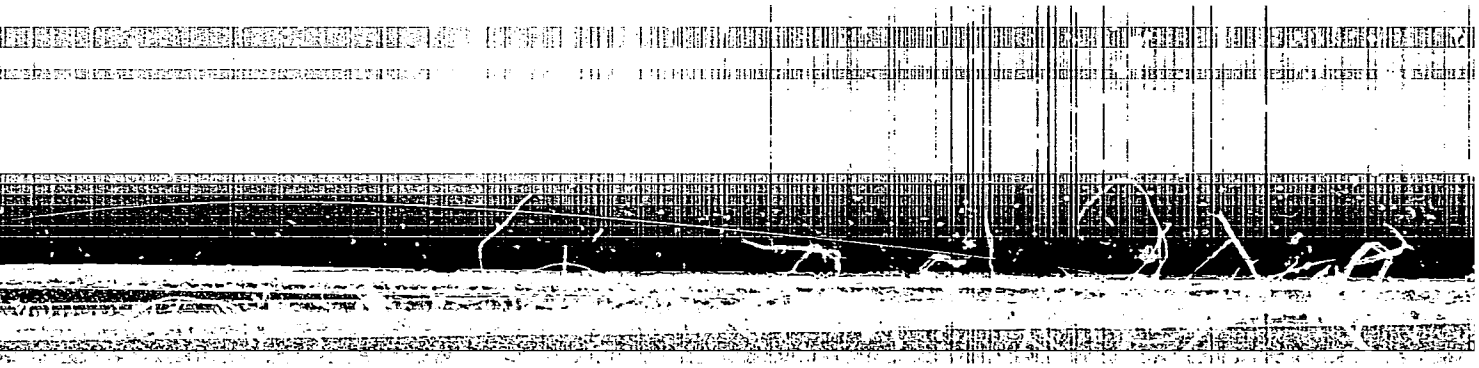

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010009-4"

UDC 681.332.65

USSR

VOLKOV, A. N., and SHTRANIKH, I. V., Physics Institute imeni P. N. Lebedev

"Device for Comparing Binary Codes"

USSR Authors' Certificate No 309360, Cl. G 06 f 7/04, filed 26 Sep 69, published 13 Aug 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 5, May 72, Abstract No 5B186P)

Translation: Many-valued answer parsing logic devices, which present at one of three outputs ($>$, $<$, $=$) a signal of noncorrespondence ($>$ or $<$) between two code numbers or a signal of their equality ($=$), are used to perform operations of associative code comparison. The proposed device differs in that in it the multidigit logic circuit in each digit uses two opposing voltage-stabilizing tubes connected to the voltage-stabilizing tubes of the next digit through a parallel-connected resistor and capacitor. The anode of the low-order digit voltage-stabilizing tube is connected through the resistor to the zero line. The anode of the high-order tube is connected to the output line of the device. This simplifies the device and makes it more reliable.

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USSR

BENETSKIY, B. A., NEFEDOV, V. V., FRANK, I. M., and SHTRANIKH, I. V., Institute of Nuclear Research, Academy of Sciences USSR

"Interaction of 13-17-Mev Neutrons With Lead Isotopes"

Moscow, Yadernaya Fizika, Vol 17, No 1, 1973, pp 21-23

Abstract: For purposes of studying the interaction of neutrons with heavy nuclei in the vicinity of filled shells, the authors investigated the total neutron cross-sections σ_T for $Pb^{206,207,208}$. The results of these experiments were reported at the Twenty-Second All-Union Conference on Nuclear Spectrometry. A resonance peculiarity is observed in the behavior of σ_T for Pb^{207} at a neutron energy of 16.8 Mev (16.7 Mev c.m.s.), which corresponds to excitation of the compound nucleus Pb^{208} equal to ε = 24.1 Mev. The position of the resonance, the order of its width and the character of the peculiarity in the variation of the elastic scattering cross-section with energy suggest the excitation of analog fast-neutron capture resonance.

The authors thank V. A. ROZOVSKIY and V. P. MALIKOV, who took part in the work, and F. L. SHAPIRO, G. Ye. BELOVITSKIY, I. Ya. BARIT, V. I. POPOV, and V. A. SERGEYEV for discussing the work and for their interest in it.

1/2 030 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--EFFECT OF SMALL CONCENTRATIONS OF UREA ON ATPASE ACTIVITY AND UV LUMINESCENCE OF MYOSIN -U-

AUTHOR--SHTRANKFELD, I.G.

COUNTRY OF INFO--USSR

SOURCE--BIOFIZIKA 1970, 15(1), 22-5

DATE PUBLISHED-------70

SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--MUSCLE TISSUE, PROTEIN, UREA, LUMINESCENCE, UV LIGHT, ADENOSINE TRIPHOSPHATE, ENZYME ACTIVITY

CONTROL MARKING--NO RESTRICTIONS

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CIRC ACCESSION NO--AP0117858

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE EFFECT OF INCUBATION OF MYOSIN (I) WITH DIL. UREA SOLNS. ON UV LUMINESCENCE AND ATPASE ACTIVITY WAS STUDIED. BOTH THE ATPASE ACTIVITY AND THE INTENSITY OF LUMINESCENCE INCREASED WITH INCREASING UREA CONCN. UP TO 1M AND THEN DECREASED. THE DEACTIVATION OF I BY CONCD. UREA SOLNS. WAS ACCOMPANIED BY AN INCREASE OF VISCOSITY OF SOLNS. OF I, AND A SHIFT OF THE LUMINESCENCE MAX. BY 5 MMU IN THE DIRECTION OF LONGER WAVELENGTHS. FACILITY: INST. BIOL. PHYS., PUSHCHINO, USSR.

UNCLASSIFIED

1/2 018 UNCLASSIFIED PROCESSING DATE--18SEP70

TITLE--MEASUREMENT OF THE CONCENTRATION OF OXYGEN DISSOLVED IN TANTALUM -U-

AUTHOR-(05)-ANUCHKIN, A.M., VOLKOV, A.K., KIDIN, I.N., ROZHNOVA, T.M., SHTREMEL, M.A.

COUNTRY OF INFO--USSR

SOURCE--IZV. VYSSH. UCHEB. ZAVED., CHERN. MET. 1970, 13(1), 140-2

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SUBJECT AREAS--MATERIALS

TOPIC TAGS--OXYGEN, TATALUM, SOLUBILITY, SOLID SOLUTION, REFRACTORY METAL

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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UNCLASSIFIED

UNCLASSIFIED PROCESSING DATE--18SEP70

2/2 018

CIRC ACCESSION NO--AT0102942

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. DETN. OF THE CONCN. OF INTERSTITIAL SOLID SOLNS. IN REFRACTORY METALS ON THE BASIS OF THE RESIDUAL ELEC. RESISTANCE IS FASTER THAN THAT BASED ON CELL PARAMETERS, AND OFTEN MORE RELIABLE THAN METHODS USING VACUUM FUSION OR VACCUM EXT. TO AVOID ERRORS RESULTING FROM THE GEOMETRY OF THE SPECIMENTS, THE PARAMETER EMPLOYED IS CHI, THE RATIO OF THE RESISTANCES AT 2 TEMPS., CHI IS A NONLINEAR FUNCTION OF THE CONCN., BUT THE FUNCTION Z EQUALS (CHI MINUS 1) PRIME NEGATIVE1 IS A LINEAR FUNCTION OF THE CONCN. C IS THE MATTHIESSEN RULE IS OBEYED. THE RELATION Z EQUALS ALPHA PLUS QC IS EVEN MORE WIDELY VALID WITHIN ADEQUATE LIMITS OF ACCURACY. TA STRIPS CONTG. TRACES OF NB, MO, AND FE WERE ADDNL. PURIFIED BY PULSE HEATINGS (4-7 SEC) IN HIGH VACCUUM (BELOW THE M.P.) AND THE RESISTIVITY MEASUREMENTS WERE MADE AT 293DEGREESK AND 77DEGREESK BY A POTENTIOMETRIC METHOD. INITIAL VALUES OF 2.71-3.50 FOR THE RATIO CHI INCREASED TO 4.60-5.33 AFTER PURIFICATION. SAMPLES WERE DEGASSED, AND THEN SATD. WITH O FOR 5-30 MIN AT 1100DEGREESC UNDER PRESSURES OF 2-4 TIMES 10 PRIME NEGATIVE3 TORR, AND O WAS THEN REMOVED AT A PRESSURE SMALLER THAN 5 TIMES 10 PRIME NEGATIVE5 TORR. CONCN. WAS DETD. BY 3 METHODS: GRAVIMETRIC, LATTICE PERIOD, AND RESISTANCE AT 20DEGREESC. THE 3 METHODS GIVE COMPATIBLE RESULTS.

UNCLASSIFIED

Steels

UDC 621.785:66.096.5

USSR

IVANTSOV, G. I., [redacted], CHUKIN, V. V., and KASHIN, YU. A., Magnitogorsk Mining and Metallurgy Institute imeni G. I. Nosov

"New Quenching Medium"

Moscow, Metallovedeniye, No 5, May 70, pp 54-57

Abstract: To prevent cracking and distortion of steel parts, the quenching medium must have a controlled cooling rate. A medium is proposed which used solid particles and water with air being forced through the porous material as bubbles into a cylinder filled with water and the solid particles. This places the solid particles in a suspended state of high agitation. A small amount of a flotation agent may be added if necessary. In this work aluminum fillings, granulated cinders (1.5-2.0 mm mesh), glass marbles (1.5 mm diameter), and flotation additives--pine oil or propylene oxide and butanol (OPSB) in quantities of 0.01 g/l--were used. Upon adding the flotation agent and turning on the air flow, three layers were formed in the cooling medium column: top layer--a froth; middle layer--air-water mixture with a small concentration of rapidly moving particles; and the bottom layer--water-air mixture with a high concentration of slow-moving particles. The cooling rate can be regulated by changing the ratios of solid particles and water and by altering the air flow. The particle-to-water ratios used were 1/10 and 1/5, and the air flow varied from 0.3 to 0.5 l/cm^2-min.

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USSR

IVANTSOV, G. I., et al., Metallovedeniye, No 5, May 70, pp 54-57

Bolts and spikes made from 40 Kh steel were heated to 840-860°C and quenched in oil, followed by tempering. The spikes were tempered at 240-280°C to a hardness of 44-56 (Rockwell C) and subjected to a bend angle of 15° without fracture. The bolts were tempered at 500° C to a Brinell hardness of 269-388 with a tensile strength of 120 kg/mm^2 minimum.

Tests showed that 10 bolts were quenched to 20°C in stirred water and that four of them had cracks. Ten bolts oil quenched to 40°C had no cracks. Of ten bolts quenched in the above-described quenching medium with a 1/10 ratio, one showed cracks; 50 bolts quenched in the medium with a 1/5 ratio and the OPSB flotation agent showed no cracks. The bolts had a uniform sorbite structure and a tensile strength of 125-135 kg/mm^2.

Quenching the spikes in the new medium resulted in a higher and more uniform hardness and a larger bend angle before fracture (60-100°) than when spikes were quenched in oil.

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UDC 669.14.018.298:621.791.053:620.18

USSR

SHTRIKMAN, M. M., KAPRANOVA, I. P., and ROMANOVA, Ye. T.

"Structure and Properties of Weld Metal of N18K9M5T Steel With an Aging Martensite Structure"

Moscow, Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 18-22

Abstract: The effect of argon-arc welding of N18K9M5T steel on the structure and mechanical properties of the weld metal was studied. Plates 15 mm thick and cylindrical samples 100 mm in diameter with 20-mm walls were welded manually and automatically using tungsten electrodes. Three methods of welding were tried: (1) heating of the weld metal to 250-350°C after each passage; (2) continuous welding with interruptions between each weld layer in order that each layer be cooled to 200°C and not lower; (3) cooling of each weld layer to room temperature. The results indicated that cooling of each layer to room temperature causes aging of lower metal layers and decreases the impact toughness of the weld. Welding without cooling of each layer below 200-220°C eliminates the aging of the weld metal, produces stable metal structure, improves mechanical properties, and produces high impact toughness. Hardening of the weld metal at 920°C for 1 hr with subsequent cooling in air equalizes the structure of the weld metal and increases the

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SHTRIKMAN, M. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 18-22

impact toughness. The impact toughness of samples welded manually was higher than that of samples welded automatically. This was probably due to a lesser number of microdefects in the weld.

UDC 669.14.018.298:621.791.053:620.18

USSR

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SHTRIKMAN, M. M., et al., Metallovedeniye i Termicheskaya Obrabotka Metallov, No 10, 1972, pp 18-22

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UDC 621.385.032.213:621.385.032.11--621.52

USSR

SHTROMBERGER, L.V., ANOSHKIN, A.V.

"Use Of Mixed Scheme Of Evacuation During Processing Of Oxide Cathodes"

Elektron. tekhnika. Nauchno-tekhn. sb. Elektron SVCh (Electronic Technology. Scientific-Technical Collection. Microwave Electronics), 1970, Issue No 10, pp 144-148 (from RZh--Elektronika i yeye primeneniye, No 2, February 1971, Abstract No 2A116)

Translation: A method is presented for evacuation of electrovacuum devices by a mixed scheme combining oil and non-oil evacuation. At the first station (removal of gases confined in the free space of the device, gases released during warmup of the system, and gases released during burning out of the binder and decomposition of carbonates) evacuation is conducted by oil-vapor diffusion pumps through a trap which is cooled by liquid nitrogen. With a decrease of gas separation (after decomposition of the carbonates) evacuation continues with a magnetic electrodischarge pump, and the oil-vapor pump with the trap are separated from the system by a lock. A negligible gas separation at the terminal stages of processing the cathode makes it possible to employ electrodischarge

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USSR

SHTROMBERGER, L. V., et al, Elektron. tekhnika. Nauchno-tekhn. st. Elektron SVCh, 1970, Issue No 10, pp 144-148

pumps of low performance. The entire cycle of evacuation from the start-up of an oil-vapor diffusion pump to the establishment of a normal regime of current takeoff [tokootbor] from the cathode is continued for 36 hours. The method of evacuation presented makes it possible to reduce the time for processing the device at the evacuation station, to give up the use of small units, and to maintain a preference for non-oil evacuation. 4 ill. 3 ref. G.B.

2/2

Acc. Nr: AP0045523

Abstracting Service: CHEMICAL ABST. 4-70

Ref. Code: U.R0051

84553e Effect of ethyl bromide on the quasilinear luminescence and absorption spectra of biphenyl. Bolotnikova, T. N.; Sichkar', O. N.; Shtrokirkh, O. Yu. (USSR). *Opt. Spektrosk.* 1970, 28(1), 172-3 (Russ). The presence of EtBr (I) in frozen solns. of aromatic hydrocarbons (C_6H_6, PhMe, $C_{10}H_8$) in *n*-paraffins at 77°K changes their spectral characteristics as a result of the formation of an unstable charge-transfer complex. The spectra for frozen solns. of biphenyl (II) were compared with those for previously studied aromatic hydrocarbons. The addn. of I in the case of II solns. leads to a hypsochromic shift of the singlet-singlet absorption bands and to a certain enhancement of the intensity of the triplet-triplet bands. No changes in the phosphorescence and fluorescence spectra of II were obsd. in the presence of I at 77°K. The uv absorption spectrum of 10^{-3} *M* soln. of II in I showed a charge-transfer absorption band at 341 nm.

C. Farkanyi

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REEL/FRAME
19780491

USSR UDC 546.48'23:539.238

SVECHNIKOV, S. V., SHTRUM, YE. L., KLOCHKOV, V. P., ZAV'YALOVA, L. I. and TORCHUN, N. N., Institute of Semiconductors, Academy of Sciences USSR

"Monocrystalline Layers of Cadnium Selenide"

Moscow, Izvestiya Akademii nauk SSSR, Neorganicheskiye materialy, Vol 7, No 12, Dec 71, pp 2146-2149

Abstract: This paper concerns the study of the specific properties of a single-crystal layer grown on a substrate. The experimental layer of hexagonal and a mixture of hexagonal and cubic modifications was produced by vacuum deposition of cadmium selenide on mica substrates in a quasi-closed space. The morphology of the deposited layer indicates that the surface growth of cadmium selenide layers is formed by hexagonal pyramids or triangles and hexagons. Three basic types of pyramids are observed: pyramids with pointed apexes and flat lateral faces, stepped pyramids, and truncated pyramids. A correlation was revealed between the dimensions of the grown shapes and their electric conductivity. Both the resistivity and photosensitivity of the layers increase with the increasing cross section of the pyramids. The photosensitivity of single-crystal layers comprising cubic and hexagonal modifications of CdSe is higher than that of layers with hexagonal modifications. (1 illustrations, 10 bibliographic references)
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USSR UDC: 621.391.1

YAROSLAVSKIY, L. I., USOV, I. S., SHTUL'MAN, A. I.

"Design Modifications of a Switchable Data Transmission Network"

Moscow, Elektrosvyaz', No 8, 1971, pp 18-23

Abstract: The article compares two modifications proposed for a switchable data transmission network: a low-speed system using telegraph channels, and a medium-speed system using audio frequency channels. Systems transmitting at rates of 200, 600 and 1200 bauds are considered. It was found that a data transmission system organized on the basis of telephony does not provide the required rate of 600-1200 bauds. The probability of pulse errors in transmission at a rate of 1200 bauds on individual sections reaches 10^{-3}-10^{-2}. In most instances, the errors are isolated, which obviates the possibility of building an effective error elimination system into the data transmission equipment and reduces the actual data transmission rate. Ten-step switching devices are the main source of errors. Since all intercity commutation and 90 percent of the municipal commutation is done by devices of this type, the organization of a data transmission network based on telephone

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YAROSLAVSKIY, L. I., et al., Elektrosvyaz', No 8, 1971, pp 18-23

channel switching is not presently feasible. The required reliability of data transmission can be achieved by organizing a network on the basis of a telegraph system. The signals at the input and output must be direct-current packets.

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SHTUNDYUK, B.

ECOS,

Source: JPRS #53654 21 Jul 71

MEASURES URGED FOR MORE-EFFECTIVE PRODUCTION ASSOCIATIONS

[Article by B. Shtundyuk, Senior Scientific Associate of TsEMI Central Mathematic and Economic Institute of the Academy of Sciences USSR: "Association and Effectiveness"; Moscow, Leninskoye Znamya, Russian, 19 May 1971, p 2]

To intensify work on concentration and cooperation organization of production, specialization of enterprises and rationalization of the economic links between them, and establishment of large associations and combines with due regard for the special characteristics of the individual industry sectors.

In the Directives of the 24th Party Congress gigantic new tasks were planned for further enhancement of the effectiveness of national production. The papers of the Congress are on record to the effect that for continued development of the socialist economic system exceptionally great significance attaches to the setting up of production associations -- trusts, firms, combines, and other types of economic complexes. There are a number of such economic complexes in Moskovskaya Oblast. There are, for example, the Orekhovskiy Cotton Combine imeni Nikolayeva, the Gzhelzkiy Production Association Elektroizolyator, and the Moskovskiy Worsted Production Association. The Kurovskiy Mixed Cloth Production Association began operation quite recently; it was formed by a merger of the Kurovskiy Mixed Cloth Combine and the Novinskiy and Absyuninskiy Spinning Factories. Why is so much attention now being focused on the formation of associations? The best way to answer this question is by citing a concrete example.

In the Moskovskiy Shawl Production Association the enterprises and other units of the economic complex have been specialized; this has enabled them to introduce current specialized equipment in production. Thus, in a period of only 3 years 108 STB-2-216 automatic machine tools were set up for weaving production in the factory imeni 10 Godovshchina Krasnoy Armii which, as a result, was able to double its labor productivity and release 115 persons. As a result of specialization in the weaving production of the Gorodkovskiy factory 532 automatic weaving machine tools were installed in place of the mechanical ones. This made it possible to increase the norm for maintenance from four to 12 machine tools and to free 250 workers. For the

association as a whole the level of mechanized labor rose 4 percent and the number of workers was reduced by 9&7 while at the same time there was a 6.7 percent increase in the volume of production output.

The association is a new form of production organization. A great deal, therefore, needs to be done to improve the manner of formation of associations and also to change the procedure for crediting, financing, and organizing of work and economic incentive in conformance with the special characteristics of economic complexes.

At times the setting up of associations is approached in a stilted way; the task is not preceded by a great deal of preparatory work to determine the optimum size of the association, the structure of the enterprises to be amalgamated, the extent of their specialization and cooperation, the introduction of new technology, the concentration of similar production - economic functions in the association system, etc. In such cases the establishment of the association may not only fail to increase production effectiveness but may even lower it. It would appear that precisely such a bad example is furnished by the establishment of the Belomutskiy Spring Production Association, which was formed by a merger of the Belomutskiy and Podvisskiy Spring Factories. Both are low-capacity enterprises, the relationship between them has been a difficult one (the distance between the factories is more than 100 kilometers) and to speak of any effect from this merger is unwarranted.

We are of the opinion that a great deal needs to be done also to improve the associations' credit system. Thus, enterprises and associations are currently making fairly active use of bank loans to cover expenses connected with putting new products and new types of output into production, and with improving the quality of the products. In accordance with the procedure established by Gosbank USSR, a loan for these purposes is granted for a one-year period. If the loan is not liquidated on time, the enterprises and associations pay a higher percentage to the bank from their profit.

But experience shows that in most cases it takes at least 2 years to put new production into operation and to modernize output in production. This applies especially to associations. The fact is associations, to a far greater degree than autonomous enterprises, independently manufacture the materials, assemblies, and semimanufactures necessary for production of final product. Consequently, the cycle for manufacture of output in associations is usually more complex and lengthier than in independent enterprises. When the associations must pay an increased percentage to the bank, it has an adverse effect on their motivation for technical progress. It would therefore be desirable to increase to 2 years the normative time limit stipulated for credit granted for putting new products and new types of output into production.

For a large part of the materials, raw material, and semimanufactures received by associations payment is made in the form of payment demands with a subsequent acceptance. The essence of this form of payment is that the supplier submits to the bank a payment demand which requires that the association

pay [illegible] the money for output delivered to it. When the payment demand is submitted to the Gosbank branch, the money is transferred from the current account of the association to that of the supplier. If, subsequently, it turns out that the supplier has violated the terms of delivery or of the economic agreement, then the purchaser can put in a claim for recovery of the money he paid.

This would be all well and good. But this is only a first impression. The fact is raw material and materials are frequently sent directly to the association branches in order to expedite deliveries and reduce transport - warehousing expenses. Moreover, in many associations the branches do not have legal status and so payments for output delivered to them are consolidated by the association. In these cases, if the association has some doubts about the supplier's compliance with the terms of the economic agreement, then, before accepting the bill submitted, it asks the branch for the pertinent information. Frequently the association and its branches are separated by a considerable distance and hence quite a lot of time is consumed for such coordination. As a result, the rate of turnover of the association's funds is slowed, it develops a concentration of surplus funds, and the financial indicators for the work of the association are artificially boosted. At the same time, the supplier, through no fault of his own, does not get his money from the association promptly and frequently finds himself in a difficult financial situation. They may say that this is a statement of fact. But where is the way out of this delemma?

In industry at present, along with the acceptance form of payment for goods and services, the method of planned payment is also being used for this purpose. In this form of payment the purchaser himself makes periodic transfers of equal amounts of money to the current account of the supplier. At the end of the month the supplier and purchaser make a final recomputation. However, this form of paymentc has not come into widespread use. Why? What stands in the way?

One of the reasons is the fact that enterprises and associations frequently fail to observe the time limits for delivery and also violate the technical terms and other items of the economic agreement. Consequently, purchasers are not interested in converting to this progressive form of payments. The imposition of stiff fines for violation of the terms of delivery would make it possible to strengthen payment discipline and to convert the associations to payments by the planned payment method. Stability of the economic links between suppliers and customers is an indispensable condition for conversion to the planned payment procedure. However, the economic organizations and many associations change supplieru every year or even several times a year.

In many cases, when several enterprises are merged in an association management functions related to the production-economic complex as a whole become the responsibility of the apparatus of the leading enterprise.

To enhance the productivity and quality of the labor of the associations' staff personnel, more than 2 years ago bonuses were instituted for such workers

for fulfillment by the association of a plan based on indicators for building of capital. In payment of these bonuses exceptionally great significance attaches to an accurate record of the personal contribution of each of the management workers to the successes achieved by the associations. In this connection, a temporary model statute on bonuses for supervisory, engineer-technical, and office workers of the association appears would stipulate that supplementary conditions for bonuses could be established apart from the basic bonus requirements for workers of these categories. The supplementary bonuses would be made contingent upon the special characteristics of the work of the structural subdivisions of the association appears. Also, it frequently happens that in one and the same division work performed by equal associates has its own special characteristics. It is therefore advisable to differentiate among the supplementary requirements for bonuses not only according to structural subdivisions but also for individual workers or groups of workers within the same subdivision.

In the Directives of the 26th CPSU Congress it is emphasized that continued enhancement of production effectiveness depends in large part on improvement of the management of the national economy. Therefore, problems involving development of a network of associations in the country and problems connected with their work must be resolved at all levels as soon as possible.

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CSO: 1820-W

SHTUNDYUK, V.

Source: JPRS 52518
3 March '71

F/TR

SHORTCOMINGS NOTED IN PRODUCTION ASSOCIATIONS

[Article by V. Shtundyuk, senior scientific associate, Central Economic Mathematics Institute, Academy of Sciences USSR; Moscow, Leninskoye Znamya, Russian, 27 December 1970, p 2]

On 17 November our paper published an article entitled "Steps by Moscow Area Firms." Its authors, economists L. Kats and V. Shmelev, analyzed the structure of Moscow area industrial associations and gave their opinion concerning the development of the new form of management. Today V. Shtundyuk, Senior Scientific Associate of the Central Economic Mathematics of the Academy of Sciences USSR, continues the discussion of further improving production associations.

Quite a bit has been written concerning the advantages of associations, some of which has appeared in the paper Leninskoye Znamya. For this reason I think that the approach of the authors of "Steps by Moscow Area Firms" is correct in not stressing the positive aspects of associations but in emphasizing that which hinders their creation and operation. I would like to continue the discussion along the same line.

The installation of new equipment, improvement of technology, and organization of production in associations as in ordinary enterprises are being realized according to the plan of the new technology. According to the approved plan, associations are now able to get financing for work connected with technological improvement of production; necessary material and technical resources are released for this purpose and time limits are set for the completion of projects and for construction and assembly work. But since the plan of the new technology has to be compiled and approved on an annual basis, associations hesitate to include in it major measures, the implementation of which would take several years. They [illegible] this by saying: "If we [illegible] next year [illegible] either resources or funds." Nevertheless it is the [illegible] that are as a rule the most effective. [illegible] in connection with the new technology tends to hold back modernization of production in associations.

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The creation of associations is related to modification of specialization in enterprises, branches, and industries and to large-scale work concerned with implementing new techniques, mechanization, and automation of industrial processes. The present way of compiling plans according to the new technology consequently affects adversely the (illegible) of technological development of associations. It is accordingly believed that it would be helpful to compile technical development plans once every two or three years.

Now another consideration. According to established practice, wages are charged to associations by organs of bank according to plan fulfillment of sales volume for the production complex as a whole. At the same time the output of enterprises and affiliates of the firm requires varying amounts of labor and varying amounts of wages per ruble of sale. In case of plan overfulfillment with respect to sales by enterprises and affiliates of an association producing goods that require labor output that is higher than average for the complex, the money allotted for wages to the association as a whole is exceeded. Should the production above plan be charged to plants that use less labor, the association would achieve unnecessary economy of wage funds. It would therefore be more correct to charge wages to associations according to the sales of each of its structural subdivisions.

In our view, it would be permissible for an affiliate to turn over immediately to the local branch of Gosbank the payments concerned with operation, a loan to implement the new technology. In case of a favorable conclusion, the branch of the bank serving the association issues the loan.

Associations and manufacturing units that are large enterprises, for this reason they are in a position to perform a number of functions in such areas as planning, supply, marketing, capital investment, technical policy, etc., which would be beyond the capabilities of individual enterprises. While ensuring the possibility for a gradual expansion of operational independence for associations, given a number of privileges the exercise of which is necessary in management practice. The expanded initiative of associations increases the mobility and flexibility of their operations, freeing ministries of unnecessary obligations, thus allowing them to concentrate their efforts toward the solution of more important problems for an industry as a whole.

We are referring here to the development of principles of cost accounting on the level of those requirements that are consistent with the new methods of management.

The following could be included in the mechanism of regulating incentives. Associations as a rule have a rather high technical and organizational level of production. Consequently when new enterprises are included in a firm, technical and economic indicators of the association are introduced. In consequence the amounts of incentive funds and bonuses paid from them are smaller. Such a state of affairs naturally contributes associations being reluctant to include in their composition enterprises with low technical and economic standards. It would therefore be desireable that when new enterprises are included in associations, each one should be allowed to set up incentive funds according to its former standards for a stated period of time (such as a year or a year and a half) during which time it would have an opportunity to improve its technique, technology, and organization of production.

Such a way of creating funds for economic stimulation of association structural subdivisions permits liquidation of the wage leveling factor in the distribution of bonuses and offsets the negative reaction of associations to the inclusion of lagging plants. It also increases the interest of lagging enterprises in cost economies and in a more rapid improvement of technology and organization of their production.

When establishing associations, it is important to overcome such a psychological barrier. The creation of well-planned and economically justifiable operational complexes is frequently connected to the necessity of merging enterprises and organizations belonging to different agencies, thereby transferring enterprises and organizations from one agency to another. To avoid such difficulties we believe that the creation of associations requires that this be carried out according to special plans compiled for such large territorial and industrial complexes as the Moscow economic region which are approved by all interested organizations.

7697
CSO: 1820-A

SHTUNDYUK, V

Econ

CORRECT ORGANIZATION OF ASSOCIATIONS STRESSED

Article by V. Shtundyuk, candidate of economic sciences: "Not an Ordinary Merger"; [illegible] Russian, 14 January 1972, p 2

Over a nine-year period the Leningrad Optics-Mechanics Association has become unrecognizable. Twenty-six shops and approximately 100 sections have been reequipped, 12,500 meters of production space and 500 pieces of equipment have been eliminated, and the level of mechanization and automation of production has increased significantly. Products bearing the trademark LOMO [Leningrad Optics-Mechanics Association] are meeting with great success on foreign and domestic markets.

The economic reform made it possible to accelerate the rate of technical progress. But there were other factors involved. Just the matter of uniting the previously independent enterprises played an important role. And it was no accident that the rates of reequipping associations significantly surpass the average for industry.

As is known, an association has the possibility of implementing not only product but technological specialization as well. And this in turn leads to an intensification of intra-plant specialization, and makes the shift to the advanced mass-assembly line methods of production with all their advantages a reality.

In an association, even the small, technically backward production units can make full use of the experience of the large main plant. At their disposal are the extensive technical services, the experimental shops, stations, and laboratories. They say, that in the new framework an enterprise loses its independence... It would be more accurate to say -- it is freed of the very unpleasant necessity of depending on its own efforts for everything.

Nevertheless, the technical level of certain associations is not high enough. Why is this? The fact is that they are not making full use of their own potential. It is still necessary to create stable conditions, to implement

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USSR

UDC 669-415:620.175

SHTURGUNOV, I. L., LOBAREV, M. I., GERASHCHENKO, P. M.

"Estimating the Ductility of Thin Sheet Materials"

Moscow, Zavodskaya Laboratoriya, Vol 37, No. 8, 1971, p 972-974.

Abstract: A method is suggested for estimating the ductility of thin sheet materials (less than 5 mm thick), based on tests involving twisting of specimens of various shapes. A square specimen form is used for tests at 800-1300° C, a cylindrical form for tests at 20 to 800°C. The results produced are compared to the results of testing using the method of the Central Scientific Research Institute for Ferrous Metallurgy. The method described can be used to evaluate plasticity and deformation resistance of thin sheet and bimetallic materials, to study the influence of the degree of preliminary deformation, etc. 3 figs; 4 biblio refs.

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S

UDC 621.391.823

USSR

MAKARENKO, L. A., SHTURMAN, V. V.

"Suppression of Radio Interference Created by the Electrical Equipment of Motor Vehicles Interfering with Operation of Mobile Radio Units"

Vopr. ekspluat. ustroystv svyazi i telemekhan. v energosistemakh (Problems of Operating Communications and Telemechanics Devices in Power Systems), vyp. 10, Moscow, Energiya Press, 1970, pp 134-139 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A333)

Translation: This article contains an investigation of the causes of occurrence of interference from an operating motor vehicle engine with respect to the radio unit installed in it for use by the field operative and repair brigades in the power systems. The basic courses of radio interference are the ignition system and the electrical equipment of the battery charging circuit. The interference can be caused by additional sources: the water-temperature, oil-pressure and other gauges operating on the principle of current breaking, the electric starter, windshield wiper and heater motors, light switches, the rpm indicator breaker, poor electrical contacts and various cut-off switches. The level of the radio interference field in the 0.15-400 megahertz range (maximum in the 30-150 megahertz band) at a distance of 10 meters varies within the limits of 20-2,000

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USSR

MAKARENKO, L. A., SHTURMAN, V. V., Vopr. ekspluat. ustroystv svyazi i telemekhan. v energosistemakh (Problems of Operating Communications and Telemechanics Devices in Power Systems), vyp. 10, Moscow, Energiya Press, 1970, pp 134-139 (from RZh-Radiotekhnika, No 8, Aug 70, Abstract No 8A333)

microvolts. In the case of application of noise suppression devices, the interference level does not exceed 20 microvolts throughout the entire frequency range. Measures promoting interference suppression are indicated.

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USSR UDC: 681.3.055

SHTURMAN, Ya. P., Electric Modeling Laboratory, All-Union Institute of Scientific and Technical Information, Academy of Sciences of the USSR

"A Reversible Shift Register"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, No 9, Mar 71, Author's Certificate No 297073, Division G, filed 9 Feb 70, published 2 Mar 71, p 163

Translation: This Author's Certificate introduces a reversible shift register based on logic elements. As a distinguishing feature of the patent, the register is simplified and its reliability is improved by using one three--input coincidence circuit per digital place. The output of the coincidence circuit is connected to one of its inputs and to the two other inputs of the following and preceding elements respectively. Like inputs of the elements are connected to the corresponding command lines for shifting and for information storage.

1/1

Instrumentation and Equipment

USSR UDC: 621.762.002.5(088.8)

PAVLOVSKAYA, Ye. I., TIKHONOV, G. F., NIKOLAYEV, A. N., SHTUTMAN, B. A., KHRENOV, B. A., GORYACHEVA, Z. V.

"Device for Feeding of Powder into Rolls of a Rolling Mill"

USSR Author's Certificate Number 352685, Filed 8/06/70, Published 26.10/72 (Translated from Referativnyy Zhurnal Metallurgiya, No 8, 1973, Abstract No 8G450).

Translation: The device suggested contains a hopper and a feeder. In order to increase the quality of the product produced, the feeder is made in the form of a strip transporter connected through a drive to the rolls of a rolling mill.

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USSR

UDC 620.193.57

SHATINSKIY, V. F., SHTYKALO, I. G., ZAMORA, M. F., BOLCBOSOVA, V. V., and ZBOZHNAYA, O. M., Physicomechanical Institute, Academy of Sciences Ukrainian SSR, Lvov, and Lvov Polytechnical Institute

"Effect of Aging EI437B Alloy on Its Corrosion in Lithium"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 46-49

Abstract: The effect of the unstable structure of alloy EI437B (77% Ni, 18-20% Cr), produced by normal and vacuum melting, on its corrosion in lithium was studied. After annealing in a vacuum at 1080° C for eight hours, samples of EI437B were aged at 600, 700, and 800° C for aging times ranging from 25 to 2000 hours. Corrosion testing was performed in a convection flow of lithium with a hot-zone temperature of 700° C, temperature drop of 300° C and a test time of 100 hours. Investigation of this alloy from ordinary melts yielded analogous results: corrosion failure depends on the structural changes in the alloy but the total losses are greater than for vacuum-melted samples. Measurements of electrical resistance and microhardness after heat treatment testify that aging processes start in this alloy not much later and develop slower than in a vacuum-melted alloy. Complete stabilization of structure at 700° C

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USSR

SHATINSKIY, V. F., et al., Fiziko-Khimicheskaya Mekhanika Materialov, Vol 9, No 6, 1973, pp 46-49

is achieved only after aging for 1000 hours. Maximum corrosion losses are observed later and only after a 1000-hour age at 700° C. Basically, corrosion losses depend on aging time when dehomogenization of the solid solution occurs, which is in the period of secondary phase nucleation. Local corrosion occurs primarily by means of the dissolving of nickel around particles of the secondary phase. Two figures, 10 bibliographic references.

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USSR

UDC 617-007.17-092.9-07:616.12-008.1-072.7

SHTYKHNO, Yu. M., and MARKOVSKAYA, G. I., Laboratory of General Pathophysiology and Experimental Therapy and Laboratory of Experimental Cardiology, Institute of Normal and Pathological Physiology, Academy of Medical Sciences USSR, Moscow

"Effects of Thermal Trauma on the Contractile Function of the Rabbit Heart"

Moscow, Pathologicheskaya Fiziologiya i Eksperimental'naya Terapiya, No 3, May-Jun 73, pp 64-66

Abstract: The contractile function of the myocardium was studied on rabbits subjected to severe 2d and 3d-4th degree burns. At both burn degrees, the burn lesion extended over 25-30% of the body surface. Both under conditions of relative physiological rest and of maximum contraction of the heart produced by compression of the aorta, no significant changes in the contractile function were observed for 24 hrs, except that the maximum rate of the rise and fall of pressure in the left ventricle was considerably diminished vs. that of controls and of animals with less severe burns.

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010009-4"

USSR

UDC 621.375.82

LOBOV, G. D., SHTYKOV, V. V., and GRATSIANSKAYA, Ye. I.

"On the Possibility of Using the Magnetic Moment of the Electrons of a Semiconductor Plasma to Record CO_2-Laser Emission"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 100, pp 70-74 (from RZh-Fizika, No 8, Aug 72, Abstract No D1019 by S. F. Sharlay)

Translation: Formulas are obtained for the magnetization caused by the electrons in the conduction band of a semiconductor cylinder situated in a magnetic field. It is shown that it is possible to record the radiation passing through the semiconductor by measurement of the variable magnetization component. Estimates are given of the voltage appearing on the terminals of the induction coil surrounding the cylinder, as well as of the magnetic field intensity necessary for the case of the passage of CO_2-laser radiation (λ = 10.6 microns) through InSb, HgTe, and $Cd_xHg_{1-x}Te$.

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USSR

UDC 621.375.82

SHTYKOV, V. V.

"On the Conversion of CO_2-Laser Radiation Into Millimeter Radiation Through the Use of the Magnetic Moment of the Electrons of the Conduction Band of a Semiconductor"

Tr. Mosk. energ. in-ta (Works of Moscow Power Engineering Institute), 1972, vyp. 100, pp 75-80 (from RZh-Fizika, No 8, Aug 72, Abstract No 8D1020 by S. F. Sharlay)

Translation: The article considers the possibility of converting laser IR radiation to the millimeter frequency band during its propagation in a semiconductor situated in a magnetic field. In order to record an SHF signal, it is suggested that use be made of a rectangular metallic waveguide. Estimates are given of the amplitude of the electric field at the center of the waveguide and of the difference frequency power for the case of the conversion of CO_2-laser radiation (λ = 10.6 microns) into radiation with a 5.6 mm wavelength in InSb which is at a temperature of 77° K.

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USSR UDC 621.373.029.7.001.5

LOBOV, G.D., SHTYKOV, V.V., BOGETKIN, V.I., DRUGOV, L.V.

"Possible Mechanism Of Discharge Current Change In CO_2 Affected By Laser Radiation"

Radiotekhnika i elektronika, Vol XVII, No 6, June 1972, pp 1246-1251

Abstract: One of the possible mechanisms is considered for change of the discharge current in carbon dioxide gas affected by the radiation of a CO_2 laser. The theoretical results are found in satisfactory agreement with experimental data. In the experiments particular attention was paid to the effect of radiation on the discharge current in CO_2 during irradiation of its cathode region by a fine laser beam. A theoretical and experimental estimation was also made of the efficiency of conversion of a detector of infrared radiation, using a change of discharge current. It is possible that the results obtained in this work can be useful during study of the processes in the gaseous medium of CO_2 amplifiers and generators, and also during use of the change of the discharge current for registering the radiation of a CO_2 laser. The authors thank E.S. Shitsman for participation in the conduct of the experiments. 5 fig. 9 ref. Received by editors, 12 April 1971.

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USSR

UDC 614.31:615.285.7

UPOROVA, G. I., and SHTYLER, S. Yu., Smolenskaya Oblast Sanitary Epidemiological Station

"Determination of Residual DDT and Lindane in Foodstuffs"

Moscow, Voprosy Pitaniya, No 5, 1970, p 91

Translation: Our laboratory determines residual DDT and lindane in foodstuffs by the method of thin-layer chromatography proposed by the All-Union Scientific Research Institute of Hygiene and Toxicology of Pesticides, Polymers, and Plastics (M. A. Klimenko and Z. F. Yurkova, Metody opredeleniya mikrokolichestv pestitsidov v produktakh pitaniya, pochve i vode [Methods for Determining Microquantities of Pesticides in Foodstuffs, Soil, and Water], 1965).

However, this method requires the presence of a special chamber with an exhaust device and a glass pulverizer to spray the chromatograms, a fact which detracts from its applicability in practical laboratories.

We concluded from experience that it is more convenient and simpler to apply silver nitrate to the chromatograms rather than a solution of

USSR

UPOROVA, G. I., and SHTYLER, S. Yu., Voprosy Pitaniya, No 5, 1970, p 91

silver ammoniate in acetone.

The sorption mass is prepared as follows: 50 g of aluminum oxide is passed through a capron (polycaprolactam) sieve, mixed in a porcelain mortar with 5 g of medical gypsum, placed in a flask, 75 ml of 0.1% aqueous solution of silver nitrate added, and the mixture agitated until a homogeneous mass forms. The sorption mass thus prepared is applied to glass plates 9 X 12 cm in size and dried at room temperature for 18 to 20 hours. The plates must be stored in a dark place. After chromatography the plates are immediately irradiated with UV light (PRK-4 or PRK-2 lamp).

The analytical results obtained with the use of the suggested plates coincide completely with those produced by spraying them with a solution of silver ammoniate in acetone.

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1/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

TITLE--KINETICS AND MECHANISM OF CARBON MONOXIDE OXIDATION ON PLATINUM PURIFIED IN AN ULTRAVACUUM -U-

AUTHOR-(03)-TRETYAKOV, I.I., SKLYAROV, A.V., SHUB, B.R.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(1), 166-75

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--CARBON MONOXIDE, PLATINUM, METAL PURIFICATION, ULTRAHIGH VACUUM

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1997/1460 STEP NO--UR/0195/70/011/001/0166/0175

CIRC ACCESSION NO--AP0120247

UNCLASSIFIED

2/2 016 UNCLASSIFIED PROCESSING DATE--23OCT70

CIRC ACCESSION NO--AP0120247

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE OXIDN. OF CO ON PT WAS STUDIED AT 175-1000DEGREES AND 10 PRIME NEGATIVE6-10 PRIME NEGATIVE2 TORR. THE KINETICS OF THIS REACTION IS EXPLAINED BY A MECHANISM IN WHICH CO COLLIDES WITH AN O ATOM ADSORBED ON AN ACTIVE CENTER OF PT. A KINETIC EQUATION WAS DERIVED BY ASSUMING STEADY STATE ACTIVITY OF THE O SPECIES ADSORBED ON THE PT. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

TITLE--APPLICATION OF STATISTICAL KINETIC THEORY TO THE DESORPTION OF SIMPLE GASES -U-

AUTHOR-(03)-RCGINSKIY, S.Z., BERKOVICH, M.A., SHUB, B.R.

COUNTRY OF INFO--USSR

SOURCE--DOKL. AKAD. NAUK SSSR 1970, 190(5), 1143-6

DATE PUBLISHED--------70

SUBJECT AREAS--PHYSICS, CHEMISTRY

TOPIC TAGS--DESORPTION, GAS STATE, KINETIC THEORY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1998/0725 STEP NO--UR/0020/70/190/005/1143/1146

CIRC ACCESSION NO--AT0121384

UNCLASSIFIED

2/2 023 UNCLASSIFIED PROCESSING DATE--20NOV70

CIRC ACCESSION NO--AT0121384

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE STATISTICAL KINETIC THEORY WAS USED TO DET. THE RANGE OF COMPENSATION EFFECTS IN THE DESORPTION OF SIMPLE GASES. CALCNS. WERE MADE TAKING INTO ACCOUNT THE VOL. CORRDINATION NO., AND THE RESULTS ARE TABULATED; THIS METHOD IS EITHER NOT APPLICABLE AT ALL FOR DESCRIBING THE SURFACE PROCESS OR REQUIRES GREATER REFINEMENT TO TAKE INTO ACCOUNT THE EFFECT OF THE SURFACE. THERE IS AN EFFECTIVE SURFACE CUORDINATION NO., I.E. A NO. WHICH GIVES THE PROPER ORDER OF MAGNITUDE FOR THE COMPENSATION EFFECT.

UNCLASSIFIED

USSR

UDC 5414183

KISLYUK, M. U., SHUP, B. R., Institute of Chemical Physics of the USSR Academy of Sciences

"Adsorption Equilibrium on Discrete-Inhomogeneous Surfaces"

Moscow, Izvestiya Akademii Nauk SSSR- Seriya Khimicheskaya, No 11, 1972, pp 2414-2418

Abstract: A study was made of various types of adsorption equilibrium on surfaces comprising a limited number of types of adsorption centers under the assumption of satisfaction of the Langmuir adsorption isotherm equation for each of these types. A method is proposed which permits use of the experimental adsorption isotherm to determine the number of types of centers, their relative number and the corresponding adsorption coefficients. The applicability of the method is demonstrated in the example of adsorption of hydrogen on platinum. The experimental isotherms are best described if the existence of two types of centers on the surface is assumed where the chemosorption on one of them is disscciative. The isotherms of this type are described by the equation

$$\theta = \frac{\alpha_1 \sqrt{a_1 p}}{1 + \sqrt{a_1 p}} + \frac{\alpha_2 a_2 p}{1 + a_2 p}$$

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USSR

KISLYUK, M. U., and SHUB, B. R., Izvestiya Akademii Nauk SSSR- Seriya Khimicheskaya, No 11, 1972, pp 2414-2418

where θ is the dimensionless concentration on the entire surface, a_i is the adsorption coefficient of the i-th center, and α_i is the proportion of the centers with the number i from all the centers and it signifies the discrete distribution function.

1/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--CATALYSIS BY METALS PURIFIED IN AN ULTRAHIGH VACUUM -U-

AUTHOR-(03)-TRETYAKOV, I.I., SKLYAROV, A.V., SHUB, B.R.

COUNTRY OF INFO--USSR

SOURCE--KINET. KATAL. 1970, 11(2), 479-89

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY, MATERIALS

TOPIC TAGS--VACUUM TECHNIQUE, CHEMICAL PURIFICATION, CHEMICAL REACTION KINETICS, METAL CATALYST, HYDROGEN, OXYGEN, NITROGEN, CARBON MONOXIDE, CARBON DIOXIDE

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--3004/0972 STEP NO--UR/0195/70/011/002/0479/0489

CIRC ACCESSION NO--AP0131557

UNCLASSIFIED

2/2 030 UNCLASSIFIED PROCESSING DATE--04DEC70
CIRC ACCESSION NO--AP0131557
ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A REVIEW OF THE KINETICS OF THE REACTIONS OF H SUB2 PLUS O SUB2, N SUB2 O PLUS H SUB2, CO PLUS O SUB2, N SUB2 PLUS H SUB2, AND CO SUB2 PLUS H SUB2 CATALYZED BY METALS PURIFIED IN ULTRAHIGH VACUUM. FACILITY: INST. KHIM. FIZ., MOSCOW, USSR.

UNCLASSIFIED

1/3 010 UNCLASSIFIED PROCESSING DATE--27NOV70
TITLE--PHOTOELECTROCHEMICAL PROCESSES ON A ZINC OXIDE ELECTRODE -U-

AUTHOR-(02)-SHUB, D.M., VESELOVSKIY, V.I.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(1), 97-100

DATE PUBLISHED-------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--ELECTROLYTE OXIDATION, BENZENE, ZINC OXIDE, ELECTRODE, PHENOL, PYROCATECHOL, HYDROQUINONE, PHOTO EFFECT

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED
PROXY REEL/FRAME--3006/1429 STEP NO--UR/0364/70/006/001/0097/0100

CIRC ACCESSION NO--AP0135102

UNCLASSIFIED

2/3 010 UNCLASSIFIED PROCESSING DATE--27NOV70

CIRC ACCESSION NO--AP0135102

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE PHOTOELECTROCHEM. OXIDN. OF C SUB6 H SUB6 IN DIL. ALK. SOLN. ON A ZNO ELECTRODE WAS STUDIED BY PREVIOUSLY DESCRIBED METHOD (1969). THE ELECTRODES WERE POLYCRYST. ZNO WITH ADDN. OF 0.5 ATOM PERCENT GA AND A REVERSIBLE H REFERENCE ELECTRODE IN N KOH WAS USED. ELECTROLYTE WAS 0.5N K SUB2 SO SUB4 SATD. WITH C SUB6 H SUB6 WITH ADDED KOH TO MAINTAIN A CONST. PH OF 11.0. THE MAJOR PRIMARY OXIDN. PRODUCT WAS PHOH, THEYIELD OF WHICH DEPENDED ON THE ELECTRODE POTENTIAL (30PERCENT AT 1.6 V). ADDNL. HIGHER PHENOLS SUCH AS PYROCATECHOL AND HYDROQUINONE WERE ALSO FORMED BESIDES H SUB2 O SUB2 OCCURRING IN THE SOLN. DURING IRRADN. IF THE POLARIZATION OF THE ELECTRODES WAS PROLONGED, AN AMORPHOUS DARK BROWN FILM WAS FORMED ON THE ANODE, PROBABLY DUE TO THE FURTHER OXIDN. PRODUCTS OF C SUB6 H SUB6 AND PHOH. THE PHOH IN THE SOLN. WAS DETD. BY GAS CHROMATOG. USING A FLAME IONIZATION DETECTOR AND A 1 M TIMES 3 MM STEEL COLUMN PACKED WITH GRAPHITIZED CARBON BLACK AT 170DEGREES AND WITH N CARRIER GAS AT 1.5 L. PER HR. THE HIGHER PHENOLS WERE DETD. SPECTROPHOTOMETRICALLY; H SUB2 O SUB2 WAS DETD. BY IODOMETRICALLY AND THE ZN IONS COMPLEXOMETRICALLY. THE OXIDN. OF C SUB6 H SUB6 TO PHOH IS DESCRIBED BY: (SHOWN ON MICROFICHE) THE DISPROPORTIONATION OF RADICAL C SUB6 H SUB6 OH WAS ALSO PROBABLY: 2C SUB6 H SUB6 OH YIELDS PHOH PLUS H SUB2 O PLUS C SUB6 H SUB6. THE INCREASE OF H SUB2 O SUB2 DURING THE IRRADN. WAS EXPLAINED BY THE REACTION: HO SUB2 PLUS H SUB2 O FORMS AND IS FORMED FROM H SUB2 O SUB2 PLUS OH. THE PRIMARY ANODIC REACTION ON THE ZNO ELECTRODE IN ALKALI SOLN. WAS THE DISCHARGE OF OH ION TO OH RADICAL.

UNCLASSIFIED

3/3 010 UNCLASSIFIED PROCESSING DATE--27NOV70
CIRC ACCESSION NO--AP0135102
ABSTRACT/EXTRACT--FACILITY: FIZ.-KHIM. INST. IM. KARPOVA, MOSCOW, USSR.

UNCLASSIFIED

AA0052385

UR 0482

Soviet Inventions Illustrated, Section III Mechanical and General, Derwent, 2-70

2434.99 OVERHEAD CONVEYOR has a horizontal rotating mechanism comprising a rotating sprocket and a roller set, and to the lower plane of the rotating sprocket (2) a rotary ring (6) is attached by means of brackets (5), is arranged concentrically to the axis of the rotating sprocket and has an outer diameter larger than the diameter of the circumference of the rotating sprocket. This construction increases the efficiency of the conveyor by decreasing the pitch of the large suspensions or loads (9) by ensuring their free passage at the rotating sections of the track of the conveyor.

18.3.68. as 1225909/27-11, G. Kh. SHUB, et al. (22.9.69) Bul. 16/5.5.69. Class 81e, Int. Cl. B65g

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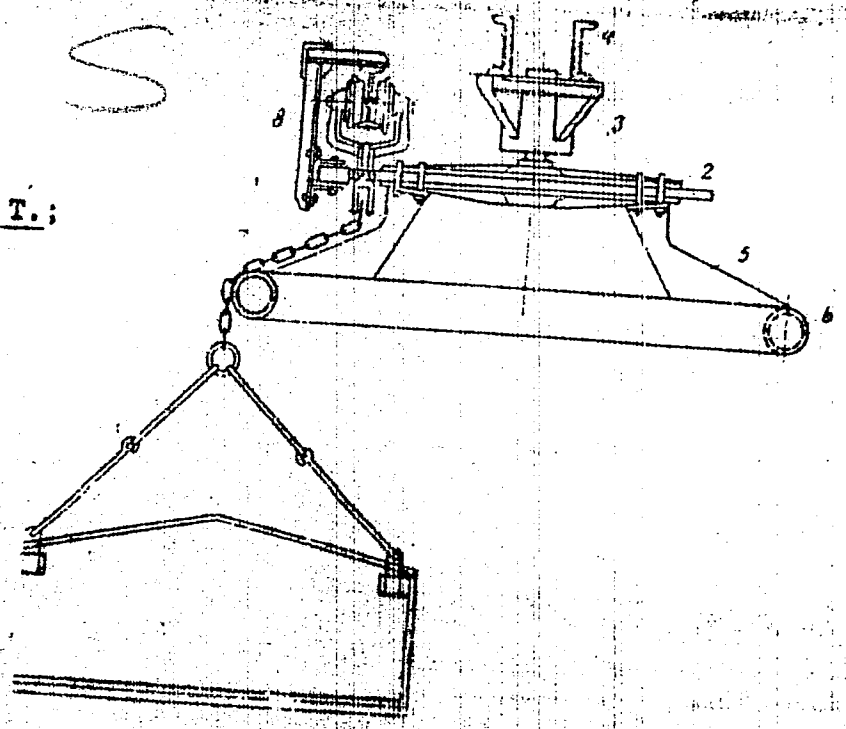
19820980

AA0052385

Shub, G. Kh.;
Grinchishin, D. T.;
Kolodnik, V. V.



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19820981

USSR

BELOV, I. A., SHUB, L. I., Leningrad

"Flow of a Vortex in the Neighborhood of a Critical Point"

Moscow, IAN SSSR, Mekhanika Zhidkosti i Gaza, No 6, Nov/Dec 70, pp 85-89

Abstract: The authors study axisymmetric flow of a viscous incompressible fluid in the neighborhood of the critical point of an obstruction when stationary vortexes oriented in the direction of the angular coordinate are introduced into the oncoming flow. A solution is given for the vortex transfer equation in the case of an external flow which contains one vortex of maximum amplitude in the low-frequency part of the spectrum. The problem is reduced to solution of a system of ordinary differential equations based on using the finite integral Hankel transform. It is shown that a sufficiently large vortex may have an appreciable effect on the structure of viscous flow close to a barrier.

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1/2 035 UNCLASSIFIED PROCESSING DATE--30OCT7(

TITLE--RECTIFIER PROPERTIES OF MICROWIRES IN GLASS INSULATION -U-

AUTHOR--SHUB, V.Z.

COUNTRY OF INFO--USSR

SOURCE--ELEKTROKHIMIYA 1970, 6(2), 155-7

DATE PUBLISHED-------70

SUBJECT AREAS--MATERIALS, PHYSICS

TOPIC TAGS--MICROWIRE, GLASS INSULATION, ELECTROCHEMICAL CELL, ALTERNATIN(CURRENT, SEMICONDUCTOR PROPERTY, VOLT AMPERE CHARACTERISTIC, HYDROGEN FLUORIDE, COPPER ALLOY, NICKEL ALLOY, MANGANESE ALLOY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--2000/0675 STEP NO--UR/0364/70/006/002/0115/0157

CIRC ACCESSION NO--AP0124347

UNCLASSIFIED

2/2 035 UNCLASSIFIED PROCESSING DATE--30OCT7

CIRC ACCESSION NO--AP0124347

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE CHARACTER OF THE PASSAGE OF A A.C. THROUGH A ELECTROCHEM. CELL CONTG. AS AN MICROELECTRODE A GLASS INSULATED MICROWIRE WAS STUDIED. THE METALS USED WERE CU, MN, OR NI ALLOYS. THESE METALS WERE SEALED IN PYREX, TO FORM THE MICROELECTRODE. A PT VESSEL SERVED BOTH AS A 2ND ELECTRODE AND AS A CONTAINER FOR THE ELECTROLYTE WHICH CONSISTED OF HF. VOLTAMMERTRIC CURVES WERE RECORDED DURING THE PROCESS OF DISSOLN. OF THE GLASS SHELL AND THE VOLTAMMETRIC CURVES WAS OBSERVED. THE SEMICONDUCTOR PROPERTIES OF THE GLASS WERE ATTRIBUTED TO THE ENRICHMENT OF THE GLASS BY METALLIC CATIONS WHICH OCCURRED DURING THE PREPN. OF THE MICROELECTRODE.

UNCLASSIFIED

APPROVED FOR RELEASE: 09/17/2001 CIA-RDP86-00513R002203010009-4"

1/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

TITLE--NEUTRON ACTIVATION DETERMINATION OF TRACE IMPURITIES IN HIGHLY PURE GERMANIUM -U-

AUTHOR-(03)-RAZUMOVA, G.N., SHUBA, I.D., VASILYEV, I.YA.

COUNTRY OF INFO--USSR

SOURCE--RADKOKHIMIYA 1970, 12(1), 133-7

DATE PUBLISHED--------70

SUBJECT AREAS--CHEMISTRY

TOPIC TAGS--GERMANIUM, ULTRAHIGH PURITY METAL, HIGH PURITY METAL, NEUTRON ACTIVATION ANALYSIS, GAMMA SPECTROMETER, SPECTROMETRY, METAL IMPURITY, ANION EXCHANGE RESIN, CATION EXCHANGE RESIN, GOLD, CADMIUM, ZINC, MERCURY/(U)AV17 ION EXCHANGE RESIN

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

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2/2 024 UNCLASSIFIED PROCESSING DATE--04DEC70

CIRC ACCESSION NO--AP0132413

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. A 0.2 G SAMPLE OF HIGH PURITY GE WAS IRRADIATED IN A FLUX OF 1.2 TIMES 10 PRIME13 NEUTRONS-CM PRIME2 SEC TO AN INTEGRATED DOSE OF 8.6 TIMES 10 PRIME17 NETURONS; SAMPLES OF THE IMPURITIES TO BE DETO. WERE ALSO IRRADIATED IN THE SAME FLUX FOR THE SAME TIME. THE GE SAMPLE WAS THEN DISSOLVED IN A 1:1:1 HCL-HNO SUB3 H SUB2 O MIXT. AND SMALL AMTS. (SIMILAR TO 10 PRIME NEGATIVE6 10 PRIME NEGATIVE4 G.) OF THE ELEMENTS TO BE DETD. WERE ADDED TO THE SOLN., TO SERVE AS CARRIERS. THE AU PRESENT IN THE SOLN. WAS THEN ISOLATED BY SORPTION ON THE AV-17 RESIN IN THE CLO SUB4 PRIME NEGATIVE FORM, AND ALL OTHER IMPURITIES WERE SEPD. BY CONVENTIONAL ION EXCHANGE CHROMATOG. ON CATIONIC RESINS; THE CONCNS. OF IMPURITIES WERE THEN DETD. BY GAMMA SPECTROMETRY. THE SENSITIVITY OF THE METHOD (FOR A 0.2 G SAMPLE) WAS OF THE ORDER OF 10 PRIME NEGATIVE6 G FOR FE; 10 PRIME NEGATIVE7 G FOR CD, ZN, AND HG; 10 PRIME NEGATIVE8 G FOR AS; 10 PRIME NEGATIVE9 G FOR SB; AND 10 PRIME NEGATIVE10 G FOR AU AND CU.

UNCLASSIFIED

1/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

TITLE--A STUDY OF THE INDICES OF HUMORAL IMMUNITY IN THE PATIENTS SUFFERING FROM FOOD POISONING OF SALMONELLA ETIOLOGY -U-

AUTHOR-(02)-SHUBA, L.I., STANISLAVSKIY, YE.S.

COUNTRY OF INFO--USSR

SOURCE--ZHURNAL MIKROBIOLOGII, EPIDEMIOLOGII I IMMUNOBIOLOGII, 1970, NR 5, PP 97-99

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SUBJECT AREAS--BIOLOGICAL AND MEDICAL SCIENCES

TOPIC TAGS--SALMONELLA TYPHIMURIUM, SEROLOGIC TEST, HEMAGGLUTINATION, BLOOD SERUM, MOUSE, ANTIBODY

CONTROL MARKING--NO RESTRICTIONS

DOCUMENT CLASS--UNCLASSIFIED

PROXY REEL/FRAME--1994/0164 STEP NO--UR/0016/70/000/005/0097/0099

CIRC ACCESSION NO--AP0114560

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2/2 027 UNCLASSIFIED PROCESSING DATE--16OCT70

CIRC ACCESSION NO--AP0114560

ABSTRACT/EXTRACT--(U) GP-0- ABSTRACT. THE AUTHORS STUDIED THE SERA OF PATIENTS SUFFERING FROM FOOD POISONING OF SALMONELLA ETIOLOGY (SALM. TYPHIMURIUM) WITH THE AID OF SEROLOGICAL TESTS; PROTECTIVE ACTIVITY OF THESE SERA WAS DETERMINED. AS ESTABLISHED, DESPITE THE PRESENCE IN THE SERA OF THESE PATIENTS OF O ANTIBODIES DETECTABLE BYAGGLUTINATION AND PASSIVE HEMAGGLUTINATION REACTIONS, THE SERA FAILED TO PROTECT THE MICE (CC-57 BR) FROM EXPERIMENTAL SALMONELLOSIS. HOWEVER, THE SEAR OF THE MENTIONED PATIENTS PRODUCED AN ANTIENDOTOXIC EFFECT IN THE TEST OF PASSIVE PROTECTION OF MICE; THIS ACTIVITY INCREASED DURING THE DISEASE. THE TITRES OF HUMORAL O ANTIBODIES CORRELATED WITH ANTIENDOTOXIC ACTIVITY OF THE BLOOD SERUM IN SEVERE AND MODERATELY SEVERE FORM OF THE DISEASE. FACILITY: I MOSCOW MEDITSINSKIY INSTITUT IM. SECHENOVA. FACILITY: MOSCOW INSTITUT VAKTSIN I SYVOROTOK IM. MECHNIKOVA.

UNCLASSIFIED

Acc. Nr. AP0037014 Ref. Code: UR 0239

PRIMARY SOURCE: Fiziologicheskiy Zhurnal SSSR, 1970, Vol 56, Nr 2, pp 246-254

ELECTRICAL AND MECHANICAL ACTIVITY OF THE STOMACH SMOOTH MUSCLES IN CAT

By *N. G. Kochemasova, M. F. Shuba, K. K. Doyev*

From the A. A. Bogomoletz Institute of Physiology, Ukr. SSR Ac. Sci., Kiev and Institute of Physiology Bulgaria Acad. Sci., Sofia

The electrical and mechanical activity of the isolated circular smooth muscles of the cat antrum has been investigated by means of «sucrose gap». Three main types of the spontaneous action potential are observed at normal conditions: a) simple action potential without plateau, b) action potential with plateau, c) action potential with plateau and additional spikes on it.

The simple spontaneous action potentials of the circular smooth muscles in the cat antrum does not produce marked contraction in the muscle. The spontaneous action potentials which have plateau are accompanied by pronounced phase muscle contraction. Strength and duration of the muscle contraction depends on the rise speed and size of the initial depolarisation phase of action potential and size of the plateau and presence of additional spikes on it.

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19721949

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Contraction in muscle cells begins when the depolarisation phase of action potential reaches its peak.

Adrenaline produced hyperpolarization, decrease both in the initial spike part and in the plateau of action potential and depression of contraction. The acetylcholine influence is accompanied by opposite changes in spontaneous activity.

D.n.

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19721950

USSR

UDC 669.14.018.8:620.193

GURVICH, L. Ya. SHURADEYEVA, L. I., All-Union Scientific Research Institute of Aviation Materials, Moscow

"The Influence of Machining Upon the Corrosion Resistance of Stainless Steels"

Kiev, Fiziko-Khimicheskaya Mekhanika Materialov, Vol 7, No 4, 1971, pp 23-37

Abstract: The article deals with the consideration, on the basis of production experience and laboratory research, of the influence of machining upon the corrosion resistance and passivation of stainless steels of the martensite class for example, 2Kh13, 3Kh13, EI 474, EI 961, Kh17N2, and 9Kh18. The complex properties of surface layers of stainless steels, caused by machining, may be very numerous, and in addition to structural transformations, defects, and internal stresses, account should be taken of the possibility of the formation of organometallic products in a reaction with the lubricant. 2 figures, 5 tables. 3 references.

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USSR

UDC 536.24.01

MARKELOVA, L. P., NEMCHINOV, I. V., and SHUBADEYEVA, L. P.

"Cooling the Heated Region Formed in the Breakdown of Air Under Laser Radiation"

Moscow, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2, 1973, pp 54-63

Abstract: As a result of the high concentration of energy at the point of air breakdown under laser radiation, the air at that point may reach a temperature and pressure of the same order as those in the fireball of a nuclear explosion at the moment the heat wave forms the shock wave, according to the authors' calculations. In this paper, they describe a unidimensional method for computing the cooling of the breakdown point and, using numerical methods, solve the problem of whether a change in the optical thickness of the fireball leads to a sharp change in the optical phenomena and a change in the proportion of the radiated energy. At the same time, they determine the intensity and flux of the radiated energy from the fireball -- i.e., they determine the characteristics of the laser explosion as the source of optical and ultraviolet emission. For the sake of simplifying the problem,

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MARKELOVA, L. P., et al, Zhurnal Prikladnoy Mekhaniki i Tekhnicheskoy Fiziki, No 2, 1973, pp 54-63

they assume that the radiation has only a slight effect on the pressure.

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USSR

UDC: 681.332.65

LAZER, I. M., OVSISHCHER, P. I., YAMPOL'SKIY, A. B., SHUBAREV, V. A.

"A Reversible Counter With Group Carry"

USSR Author's Certificate No 287121, filed 4 Jul 69, published 21 Jan 71 (from RZh-Avtomatika, Telemekhanika i Vychislitel'naya Tekhnika, No 10, Oct 71, Abstract No 10B236 P)

Translation: A reversible counter with group carry is known which is based on potential OR-NOT (AND-NOT) elements, in which each digital place is built on nine elements, six of which form the counter digit proper, which is comprised of three flip-flops with set inputs, one being a memory flip-flop and two being commutation flip-flops, while three elements per digital place are necessary for constructing the carry circuit. This type of set-up has the following disadvantages: The operating reliability of the counter is poor, since the count digit of the flip-flop has no memory of the preceding state when the next count pulse arrives, and logical shifts occur in the carry circuit. The speed of the counter is reduced because of the presence of two series diodes in the ripple-through carry circuits.

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LAZER, I. M. et al., Soviet Patent No 287121

The purpose of the proposed invention is to provide a reversible counter circuit on potential logic elements (AND-NOT, OR-NOT) which is free of the disadvantages mentioned above while reducing the expenditure of equipment per digital place in the counter. This purpose is achieved by introducing two diodes into each count digit with the appropriate connections to implement the functions of reversal and storage of the preceding state. The group carry function is performed by logic elements of the count circuit by means of the added diodes. Two illustrations.

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USSR

UDC 621.374.32

LAZER, I. M., OVSISHCHER, P. I., YAMOPOL'SKIY, A. B., SHUBAREV, V. A.

"A Reversible Counter With Group Carry"

Moscow, Otkrytiya, izobreteniya, promyshlennyye obraztsy, tovarnyye zn[illegible] 1970, No 35, Soviet Patent No 287121, class 21, filed 14 Aug 68, publi[illegible] 19 Nov 70, p 64

Translation: This Author's Certificate introduces a reversible coun[illegible] with group carry based on potential AND-NOT (OR-NOT) logic elements. digital position in the device contains a counting circuit based on [illegible] flip-flops which are separately triggered. One of these is a storage flip-flop and the other two are commutation flip-flops. As a distin[illegible] feature of the patent, the circuit is simplified, speed is increased reliability is improved by adding two diodes to each digital positio[illegible] the counter. The first input of the first diode is connected to the state of the first commutation flip-flop, and the analogous input of [illegible] second diode is connected to the zeros state of the same flip-flop. second input of the first diode is connected to the zeros state of th[illegible] second commutation flip-flop, and the analogous input of the second [illegible] is connected to the ones state of this same flip-flop. The third in[illegible]

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