SMIRNOV, V.S., prof.

Defense of dissertations in the M.I. Kalinin Polytechnical Institute in Leningrad. Izv. vys. ucheb. zav.; radiotekh. 6 no.5:579-581 S-O '63. (MIRA 17:1)

1. Rektor Leningradskogo politekhnicheskogo instituta imeni M.I. Kalinina; chlen-korrespondent AN SSSR.

SMIRNOV, V.S.; DURNEV, V.D., kand.tekhn.nauk

"Longitudinal rolling of helical rib sections" by I.IA.Tarnovskii, V.K.Smirnova, S.L.Kotsar'. Stal' 23 no.6:552-553 Je '63. (MIRA 16:10)

1. Chlen-korrespondent AN SSSR (for Smirnov).

L 31369-65 EWT(m)/EWP(k)/T/EWP(b)/EWA(d)/EWP(e)/EWP(w)/EWP(t) Pf-4
IJP(c) RDW/RH/JD/HW

ACCESSION NR: AT4047709 S/2563/64/000/238/0005/0014

AUTHOR: Smirnov, V. S., (Professor, Corresponding member AN SSSR); Alekseyev, A. M.

TITLE: Preparation of thermoelement branches by hot pressing through a die

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy, no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 5-14

TOPIC TAGS: thermoelement, thermoelement branch, hot pressing, control system component, semiconductor manufacture, squeeze casting, powder metallurgy, bismuth selenide, bismuth telluride, antimony telluride

ABSTRACT: Considerable attention is currently being paid to thermoelectric cooling by means of semiconductors. Various micro-devices have been designed for lowering and stabilizing temperature locally. This theory was first worked out by A. F. Ioffe and his school. Over 60 thermal cooling devices have now been designed for use in astronomy, atomic physics, agriculture, vacuum engineering and other fields. At present, the best materials for thermoelements are solid solutions of Bi_2Te_3-Bi_2Se_3 and Bi_2Te_3-Sb_2Te_3, developed at the Institut poluprovodnikov AN SSSR (Semiconductors Institute, AN SSSR). The thermoelement branches used in these devices are obtained by different methods, all of which have the disadvantages of low

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ACCESSION NR: AT4047709

productivity and high labor consumption. Powder metallurgy gives the best results. The negative and positive alloys are pulverized and pressed under 8-9 metric tons/cm^2, after which they are sintered in a 10^{-1} - 10^{-2} mm Hg vacuum. The mechanical strength obtained with this method is low. Casting with directed crystallization and the single crystal method require complicated equipment and also show low efficiency in production. In this article, the authors propose a new method of preparing the thermoelements, by means of which a long semiconductor rod is obtained at a high rate. The rod is then cut to the required size. The best method for obtaining a long rod is the mouthpiece method of pressing. However, the authors propose the use of hot pressing through a die, by the "squeezing" method. This is accompanied by a precise stressed condition, temperature, and degree and rate of deformation. A favorable combination of these factors makes even brittle materials into plastic ones. Both pressing and sintering are combined, ensuring intensive diffusion and higher plasticity. Pressing was performed on 120- and 200-ton hydraulic presses with pressing rates of 40 and 600 mm/min under the protection of CO_2 or argon. The entire press was heated to the required temperature by a 3.5-kW resistance furnace. The weight of the powder for each pressing operation was 100-200 grams with 1-0.5 mm particles. The tests showed that friction was important for the quality of the rods, as well as the applied pressure. Intensive lubrication was needed for obtaining high quality rods. High quality Bi_2Te_3-

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ACCESSION NR: AT4047709

Sb_2Te_3 rods were produced at 410-440C and Bi_2Te_3-Bi_2Se_3 rods at 430-470C, the latter having higher strength. Orig. art. has: 4 figures and 5 tables

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M. I. Kalinina (Leningrad polytechnical institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM,TD

NO REF SOV: 007 OTHER: 001

Card 3/3

L 35591-65 EWP(k)/EWA(c)/EWT(m)/EWG(m)/EWP(b)/T/EWP(d)/EWP(w)/EWP(v) IJP(c)
RDA/JD/HW

ACCESSION NR: AT4047711 S/2563/64/000/238/0021/0024

AUTHOR: Alekseyev, A. M. ; Smirnov, V.S. (Professor, Corresponding member AN SSSR)

TITLE: Mechanical properties of thermoelement conductors from Bi_2Te_3-Bi_2Se_3 and Bi_2Te_3-Sb_2Te_3 produced by method of extrusion

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 21-24

TOPIC TAGS: bismuth, tellurium, selenium, solid solution, thermoelement, extrusion

ABSTRACT: The authors carried out mechanical tests of thermoelement conductors prepared from Be_2Te_3-Bi_2Se_3 and Bi_2Te_3-Sb_2Te_3 alloys. The higher hardness and strength of 300 mm long specimens, particularly those of Bi_2Te_3-Bi_2Se_3 wire rods produced by extrusion is attributed to the substantial shear deformation which enhances grain refinement. Extruded specimens have an inhomogeneous structure and, consequently, non-uniform mechanical properties along and across the wire. This is due to the nonuniformity of deformation and the change of

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ACCESSION NR: AT4047711 O

temperature conditions in the deformation area resulting in the appearance of residual stresses. The authors propose heating and lubrication of the tool as well as a degree of deformation exceeding 95% as a means of decreasing the non-uniformity of mechanical properties. Experiments have shown that the mean hardness values differ only negligibly in the various sections of the specimens. Orig. art. has: 2 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 009 OTHER: 000

Card 2/2

L 35023-65 EWT(m)/EPF(n)-2/EWA(d)/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4/Pu-4

IJP(c) JD/HW/JG

ACCESSION NR: AT4047713 S/2563/64/000/238/0081/0089 11 B+1

AUTHOR: Smirnov, V. S. (Professor, Corresponding member AN SSSR); Aleksandrov, A. A.; Shibanov, L. A.

TITLE: Installation for the rolling of metals under vacuum or in inert atmosphere 18

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 81-89

TOPIC TAGS: vacuum deformation, inert atmosphere, molybdenum, titanium, diffusion pump system

ABSTRACT: The authors discuss Soviet and foreign installations which make it possible to carry out hot plastic deformation under vacuum or in inert atmospheres. Fiziko-tekhnicheskiy institut AN USSR (Physico-Technical Institute, Academy of Sciences Ukr. SSR) built an experimental installation in 1953 but its productivity was very low. LPI im. M. I. Kalinin (Leningrad Polytechnic Institute im. M. I. Kalinin) improved the design by incorporating a system of diffusion pumping and using a pump before the vacuum chambers. A number of shortcomings

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ACCESSION NR: AT4047713

still remain to be eliminated but the experimental rolling of Mo and Ti alloy specimens corroborates the possibility of utilizing the installation for the study of metal rolling under vacuum and its effect on the structure and properties of metals. Orig. art. has: 8 figures.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 005 OTHER: 002

Card 2/2

L 35022-65 EWT(m)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4/Pu-4
IJP(c) JD/HW/JG
ACCESSION NR: AT4047714 S/2563/64/000/238/0090/0094

AUTHOR: Smirnov, V. S. (Professor, Corresponding member AN SSSR); Tron', A. S.; Aleksandrov, A. A.; Vitorskiy, Ya. M.; Rybal'chenko, N. D.

TITLE: The effect of vacuum rolling on the structure and gas impregnation of titanium and molybdenum

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 90-94

TOPIC TAGS: titanium, molybdenum, vacuum deformation, structure, gas impregnation

ABSTRACT: The effect of rolling under vacuum on structure, contents and distribution of gases during heating was observed in 20x35x120 mm Ti specimens (with 4% Al) and 25x50x90 mm cast Mo specimens. Metallographic examination showed that Ti specimens absorbed gases primarily during heating and not during rolling. The structure of vacuum rolled Ti specimens was more homogeneous and coarse-grained. After vacuum annealing at 1200C and air rolling, the gas impregnated layer in Ti specimens greatly exceeded the thickness of the 0.03 to

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L 35022-65
ACCESSION NR: AT4047714

0.05 mm surface layer of Mo specimens. Vacuum rolled specimens displayed no such layer. During subsequent rolling gas-impregnated surface layers are readily ruptured and cracks propagated. Orig. art. has: 6 figures and 3 tables.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 004 OTHER: 000

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L 55180-65 EWT(d)/EWP(w)/EWA(d)/EWP(t)/EWP(k)/EWP(b)/EWA(c) Pf-4 JD/ 22 B
HW/EM

ACCESSION NR: AP5017592 RU/0017/64/000/007/0285/0292

AUTHOR: Smirnov, V. S. (Professor, Doctor, Corresponding member of AN SSSR); Chirita, V. (Candidate of technical sciences)

TITLE: Using the dimensional theory to determine the elongation coefficient with rolling of periodical sections in open calibers

SOURCE: Metalurgia, no. 7, 1964, 285-292

TOPIC TAGS: metal strain, metal plasticity, metal rolling

ABSTRACT: The authors continue their application of dimensional theory to the processing of experimental data relating to the plastic strain of metals. Starting from the establishment of the elongation coefficient for rolling open-caliber periodical sections, they deduce some general formulae for the determination of the elongation coefficient in caliber rolling. Orig. art. has: 7 figures, 10 graphs, 14 formulas.

ASSOCIATION: /Chirita/ I.C.T.C.M.

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 003 OTHER: 000 JPRS

Card 1/1

L 26309-65 EWT(m)/EPF(n)-2/EWG(m)/EWA(d)/EPR/EWP(t)/EWP(k)/EWP(b)/EWA(c)
Pf-4/Ps-4/Pu-4 IJP(c) JD/HW/JG

ACCESSION NR: AT4047716 S/2563/64/000/238/0101/0103

AUTHOR: Smirnov, V. S. (Professor, Corresponding member AN SSSR); Aleksandrov, A. A. ; Tron', A. S.

TITLE: Using vacuum or inert media in metalworking by pressure

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy*, no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 101-103

TOPIC TAGS: pressure metalworking, refractory metal, vacuum, hot deformation, molybdenum, titanium, niobium

ABSTRACT: In recent years, equipment has been developed for metalworking refractory and chemically active metals by pressure. The authors discuss foreign equipment and methods and point out the difficulties involved in operating the mechanisms and machinery necessary for metalworking by pressure under vacuum or in an inert gas medium. They emphasize the adverse effect of active gases on the properties of Mo, Ti and Nb during heating and hot plastic deformation and contend that gases are absorbed by the surface layers of these metals,

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L 36309-65
ACCESSION NR: AT4047716

primarily, during the heating process. It is, therefore, suggested that the removal of the gas-saturated surface layer by method of pickling, electropolishing or mechanical working and by shortening the heating time, improves properties without the employment of vacuum treatment or inert gases during heating and hot deformation. However, the economic effectiveness of the recommendation remains to be verified on an industrial scale. Further study of the effect of vacuum treatment and of inert gases on structure and properties as well as the investigation of installation design and friction that occurs during hot deformation are recommended.

ASSOCIATION: None

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NR REF SOV: 010 OTHER: 008

Card 2/2

L 31367-65 EPR/EPF(n)-2/EWT(m)/EWP(k)/EWP(b)/EWA(d)/EWP(t) Pf-4/ Ps-4/Pu-4 IJP(c) JD/HW/JG

ACCESSION NR: AT4047715 S/2563/64/000/238/0095/0100

AUTHOR: Smirnov, V. S. (Professor, Corresponding member AN SSSR); Amonenko, V. M.; Tron', A. S.; Aleksandrov, A. A.

TITLE: Effect of rolling in a vacuum on metal properties

SOURCE: Leningrad. Politekhnicheskiy institut. Trudy no. 238, 1964. Obrabotka metallov davleniyem (Metalworking by pressure), 95-100

TOPIC TAGS: vacuum rolling, metal rolling, metal vacuum rolling, titanium, molybenum, niobium, chromium, tantalum, vanadium

ABSTRACT: Highly purified refractory metals such as molybdenum, tungsten, niobium, chromium, tantalum, vanadium and their alloys are widely used in the development of new fields of engineering. All of these metals and alloys are generally prepared in a vacuum, since heat treatment of these metals in air leads to their contamination. Frequently, plating is used prior to rolling for protection of the metal. However, removal of the plating after rolling is very difficult. Heating and deformation of active metals in a vacuum has several advantages in comparison with treatment in an inert gas. The present paper briefly discusses the results of investigations into the effect of hot rolling in a vacuum on the mechanical

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L 31367-65
ACCESSION NR: AT4047715

properties and structure of several metals. The metals were deformed on a 170 rolling mill in a vacuum, but the auxiliary mechanisms and bearings were not in a vacuum. The metal was heated to 1500-1700C at a rolling rate of 0.1-1.0 m/sec with cooling of billets up to 800 mm in length in a vacuum of 10^{-1} to 2×10^{-5} mm Hg or in a protective gas. The rolling mill and stand used for the tests is illustrated and described in detail. The tests indicated that the ultimate strength of titanium rolled in a vacuum is lowered by about 3-5% in comparison with titanium rolled in air. The relative elongation increased by 60-80%. Heating and rolling in a 2×10^{-5} mm Hg vacuum increases the plastic properties by 10-20% in comparison with rolling in a 10^{-3} mm Hg vacuum. Heating in a vacuum and rolling in air lead to an increase in the plastic properties of titanium by 15-20%. Niobium heated and rolled in a vacuum has plastic properties 60-80% higher than those of metal rolled in air. The ultimate strength is lowered in this case by about 15-20%. Heating and rolling of molybdenum in a vacuum also leads to an increase in plastic properties by 60-90% and to a lowering in ultimate strength by 10%. The deformability of metals increases by 35-70% when heated and rolled in a vacuum. The plastic properties of the metals improve noticeably at residual pressures of 10^{-3} mm Hg. Changing of the vacuum from 10^{-3} to 2×10^{-5} mm Hg improves the plastic properties of the metals by an additional 15-20%. Hot rolling of metals in a vacuum not only protects them from contamination but also purifies them to some

Card 2/3

L 31367-65
ACCESSION NR: AT4047715

extent. Orig. art. has: 2 figures and 3 tables.

ASSOCIATION: Leningradskiy politekhnicheskiy institut imeni M. I. Kalinina (Leningrad polytechnical institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 005 OTHER: 004

Card 3/3

SMIRNOV, V.S., prof.; GRIGOR'YEV, A.K., kand. tekhn. nauk

Theory of plastic working of metals. Book by I.Ya. Tarnovskiy, A.A. Pozdeyev, O.A. Ganago, V.L. Kolmogorov, V.N. Trubin, R.A. Vaysburd, and V.I. Tarnovskiy; Review. Stal' 25 no.4:348 Ap '65. (MIRA 18:11)

1. Leningradskiy politekhnicheskiy institut. 2. Chlen-korrespondent AN SSSR (for Smirnov).

L 55097-65 EWA(k)/FBD/EWT(l)/EWG(r)/EEC(k)-2/T/EEC(t)/EWP(k)/EEC(b)-2/EWA(m)-2/EWA(h)
Pm-4/Pn-4/Po-4/Pf-4/Peb/Pi-4/Pl-4 SCTB/IJP(c) WG

ACCESSION NR: AP5014576 UR/0181/65/007/006/1756/1760

AUTHOR: Zhelnov, B. L.; Kazantsev, A. P.; Kolpashchikov, V. L.; Smirnov, V. S. 64 63 8

TITLE: Pulsations of stimulated emission in solids

SOURCE: Fizika tverdogo tela, v. 7, no. 6, 1965, 1756-1760

TOPIC TAGS: stimulated emission, laser action, solid laser, two level laser, system stability, laser, laser spiking 25

ABSTRACT: The article considers the pulsations of stimulated emission in solids at high energies, when the interaction of the electromagnetic field with the medium leads to the appearance of two types of oscillations, namely modulation of the field and slow damped oscillations. Making use of the analogy between this phenomenon and the motion of a particle in a potential well with twin valleys, the authors show by means of a phase-plane analysis that, regardless of the excitation conditions, undamped oscillations of the field amplitude are established in the system. The frequency, amplitude and period and the transient time of the oscillations are determined. Orig. art. has: 2 figures and 22 formulas. [02]

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L 55097-65
ACCESSION NR: AP5014576

ASSOCIATION: Institute fiziki poluprovodnikov, SO AN SSSR, Novosibirsk (Institute of Semiconductor Physics, SO AN SSSR)

SUBMITTED: 28Dec64 ENCL: 00 SUB CODE: EC, SS

NO REF SOV: 005 OTHER: 001 ATD PRESS: 4025

Card 2/2

L 1696-66 EWA(k)/FBD/EWT(1)/EEC(k)-2/T/EWP(k)/EWA(m)-2/EWA(h) SCTB/IJP(c) WG

ACCESSION NR: AP5022729 UR/0181/65/007/009/2816/2820

AUTHOR: Zhelnov, B. L.[44]; Kazantsev, A. P.[44]; Smirnov, V. S.[44]

TITLE: Stimulated emission of a traveling-wave laser[25,44]

SOURCE: Fizika tverdogo tela, v. 7, no. 9, 1965, 2816-2820

TOPIC TAGS: laser, laser emission, stimulated emission, traveling wave laser

ABSTRACT: The generation of a traveling-wave laser is studied theoretically near the threshold for the case of high- and low-Q resonators. It is shown that three types of stationary generation can exist: 1) a highly unstable standing-wave, 2) a slightly unstable, slow traveling wave, and 3) a highly stable traveling wave of the type exp i(ωt-kx). Under certain energy conditions, the second type can also become stable. Orig. art. has: 23 formulas. [YK]

ASSOCIATION Institut fiziki polyprovodnikov, SO AN SSSR, Novosibirsk (Semiconductor Physics Institute, SO AN SSSR)[44]

SUBMITTED: 30Jan65 ENCL: 00 SUB CODE: EC

NO REF SOV: 003 OTHER: 005 ATD PRESS: 4093

Card 1/1 mlb

L 16023-66 EWT(1)/FCC/EWA(h) GW

ACC NR: AP6006654 SOURCE CODE: UR/0203/66/006/001/0019/0026

28
B

AUTHOR: Dorman, L. I.; Medvedev, M. Yu.; Smirnov, V. S.

ORG: Polar Geophysical Institute, Kola Division, AN SSSR (Polyarnyy geofizicheskiy institut Kol'skogo filiala AN SSSR)

TITLE: Highly accurate trajectories of cosmic rays in a geomagnetic field

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 1, 1966, 19-26

TOPIC TAGS: cosmic ray intensity, magnetic dipole, geomagnetic field, anisotropic motion, asymptotic direction, spherical harmonic function

ABSTRACT: A study of planetary distribution of the intensity of cosmic rays revealed that the theoretical computations based on the magnetic dipole do not agree with the measured intensity of cosmic rays. This result indicated that the higher harmonics of a geomagnetic field influence the trajectories of cosmic-ray particles. The anisotropic motion of cosmic rays is associated with asymptotic directions. These directions can be found by solving the potential of the geomagnetic field by means of six harmonic spherical functions. The solution was based on two maps of the geomagnetic field with isolines of its components. The one

Card 1/2 UDC: 523.165

Card 2/2

L 32633-66 FBD/EWT(1)/EEC(k)-2/T/EWP(k) IJP(c) WG

ACC NR: AP6018808 SOURCE CODE: UR/0056/66/050/005/1291/1295

AUTHOR: Zhelnov, B. L.; Kazantsev, A. P.; Smirnov, V. S.

ORG: Institute of Physics of Semiconductors, Siberian Department, Academy of Sciences SSSR (Institut fiziki puluprovodnikov Sibirskogo otdeleniya Akademii nauk SSSR)

TITLE: Wave interaction in a gas laser

SOURCE: Zh eksper i teor fiz, v. 50, no. 5, 1966, 1291-1295

TOPIC TAGS: gas laser, laser beam, laser propagation, traveling wave interaction, frequency locking

ABSTRACT: The authors consider the interaction between waves traveling in opposite directions in a gas laser with a ring resonator, brought about either by the nonlinearity of the medium or by the coupling between waves as they are reflected from the mirrors. A phenomenological formula describing the latter coupling is derived and is introduced into the equations of motion for the wave amplitudes and the phases in a rotating coordinate system. The solution of these equations is used to describe frequency locking effects and suppression of one of the traveling waves. It is shown that under standard gas-laser conditions frequency locking takes place within a band of several hundred cps if the coupling coefficient between the reflected waves is of the order of 10^{-5}. The degree of suppression of one of the waves increases monotonically but not uniformly with the relative detuning. The authors thank Yu. V. Troitskiy for a useful discussion. Orig. art. has: 2 figures and 24 formulas. [02]

SUB CODE: 20/ SUBM DATE: 04Nov65/ ORIG REF: 005/ OTH REF: 003/ ATD PRESS: 5025

Card 1/1

SMIRNOV, V.S.

Animal tagging with the help of self-ringing loops. Trudy Inst. biol. UFAN SSSR no.38:21-28 '65. (MIRA 18:12)

SMIRNOV, V.S., student

Consolidation of road soils with water glass by adding granulated blast-furnace slag. Trudy STI 37:173-175 '64.
(MIRA 18:5)

ZHMLNOV, P.I.; KAZANTSEV, A.I.; NOVOSHNIKOV, V.L.; SMIRNOV, V.A.

Pulsations of induced radiation in solids. Fiz. tver. tela 7 no.6:1756-1760 Je '65. (MIRA 18:6)

1. Institut fiziki poluprovodnikov Sibirskogo otdeleniya AN SSSR, Novosibirsk.

L 22440-67 EWT(m)/EWP(v)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW/WW/JG

ACC NR: AR6033105 SOURCE CODE: UR/0137/66/000/007/D009/D010

AUTHOR: Smirnov, V. S.; Tron', A. S.; Aleksandrov, A. A.; Rybal'chenko, N. D. 44

TITLE: Producing bimetals by hot rolling in vacuum

SOURCE: Ref. zh. Metallurgiya, Abs. 7D70

REF SOURCE: Tr. Leningr. politekhn. in-ta, no. 260, 1965, 22-27

TOPIC TAGS: bimetal, hot rolling, plastic deformation, bimetal welding

ABSTRACT: The results are presented of an investigation of the effect of reduction values, the ratio of thicknesses in a packet, and the purity of treatment of welding surfaces on the weld strength of Me during plastic deformation in vacuum. The results of metallographic examination of the transition zone are also given. The investigations were carried out on pairs of Me: steel 3—Cu, steel 3—Ti, steel 3—1Kh18N9T, Mo—Ni, and Mo—Cu. To ensure strong welds deformation of 5--10% is sufficient. With increased reduction of the packet, the weld strength grows. In changing the ratio of thickness of layers of individual Me in a bimetal packet, the weld strength decreases with increased thickness of the layer of more plastic Me. At the boundary of Me contact in a bimetal, obtained

Card 1/2 UDC: 621.771.014.2

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ACC NR: AR6033105

by hot rolling in vacuum, a transition zone is produced as a result of diffusional processes. The thickness of the zone depends on the temperature of rolling, the value of reduction of the packet, the purity of mechanical treatment of welded surfaces, and on the subsequent metal heat treating. N. Yudina. [Translation of abstract]

SUB CODE: 13/

KHATIN, M. G. (Professor) and SMIRNOV, V. T. (Aspirant, BNIIVS [All-Union Scientific Research Institute of Veterinary Sanitation]).

"The use of rogor for hypodermatosis in cattle..."
Veterinariya, vol. 39, no. 2, February 1962 pp. 73

ANDREYEV, K.P., prof.; KHATIN, M.G., prof.; IVASHKOV, I.S., nauchnyy sotrudnik; SMIRNOV, V.T., aspirant

Chlorophos in the prophylaxis of hypodermosis. Veterinariia 41 no.2:44-45 F '65. (MIRA 18:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut veterinarnoy sanitarii.

SHIRYAV, V.V.

Increasing labor productivity in oleoresin dipping and transportation. Gidroliz. i lesokhim. prom. 16 no.4:25-26 '63. (MIRA 16:7)

1. Borskoye lesokhimicheskoye khozyaystvo.
(Turpentining—Equipment and supplies)

SMIRNOV, Valentin Vladimirovich

[How to assure the preservation of cabbages and onions] Kak obespechit' dlitel'noe khranenie kapusty i luka. Sverdlovsk, Ob-vo po rasprostraneniiu polit. i nauchn. znanii RSFSR, Sverdlovskoe obl.otd-nie, 1956. 11 p. (MLRA 10:2)

1. Glavnyy agronom-ovoshchevod Oblasel'khozupravleniya.
(Cabbage--Storage) (Onions--Storage)

RABINOVICH, R.I. Prinimali uchastiye: ALEGLAN, L.K., kand. sel'khoz. nauk; BARABANOVA, N.N.; BOSENKO, K.S.; VINNIK, V.V.; GRIGORCHUK, Ye.V.; GUMEROV, A.Kh.; DOBROCHASOV, D.F.; ZAMURAYEV, I.V.; ZAYTSEVA, A.G., kand. sel'khoz. nauk; KOL'TSOV, N.A.; LEVITIN, Kh.Z., kand. biol. nauk; LISITSKIY, B.Ya.; MATYASH, G.P.; MENTOV, A.V.; RABINOVICH,R.I.; SAL'NIKOV, V.V.; SVECHNIKOV, I.V.; SIMONOV, P.K.; SMIRNOV, V.V.; SMIRNOV, L.P.; SMIRNOVA, V.I.; STEPANOVA, V.I.; TARASOV, A.A.; FILATOVICH, V.V., kand. sel'khoz. nauk; FEDOROV, N.G., kand. tekhn. nauk; TSAPLIN, M.F.; KHROMOV, L.V.; DAVYDOVA, I., red.; PAL'MINA, N., tekhn. red.

[Sverdlovsk in Agricultural Exhibition of 1959] Sverdlovskaia sel'-khoziaistvennaia vystavka. Sverdlovsk, Sverdlovskoe knizhnoe izd-vo, 1960. 131 p. (MIRA 14:10)

1. Sverdlovsk. Sverdlovskaya oblastnaya sel'skokhozyaystvennaya vystavka, 1959.
(Sverdlovsk—Agricultural exhibitions)

ZYUZIN, Fedor Stepanovich; YARTSEV, Aleksandr Konstantinovich; SMIRNOV, V.V., red.; LARIONOV, G.Ye., tekhn. red.;

[Repairing peat machinery] Remont torfianykh mashin. Moskva, Gos.energ.izd-vo, 1961. 382 p. (MIRA 15:2)
(Peat machinery--Maintenance and repair)

15 (2)
AUTHORS: Smirnov, V. V., Chesnovetskiy, M. Ya., Zaytsev, G. K. SOV/72-59-8-14/17

TITLE: Removal of Bricks Which Have Sunk in in the Vault of a Tunnel Furnace (Ustraneniye kirpichey, prosevshikh v svode tunnel'noy pechi)

PERIODICAL: Steklo i keramika, 1959, Nr 8, pp 46-47 (USSR)

ABSTRACT: At the beginning of the current year 3 bricks sank in in the Dinas vault of a tunnel furnace in the zone of maximum temperatures at the Leningrad chinaware plant "Proletariy". This meant that in this particular place the furnace vault was lowered by 120-150mm, so that the piling height of the lorries had to be diminished. This, however, was of no avail either, since it upset the working conditions of the furnace. It was tried to break out the bricks by means of a ram lorry, but the attempt was unsuccessful. The authors of the present article suggested to shoot the bricks down with a military rifle, which was then carried out within an hour. In this way it was not necessary to stop the operation of the furnace, which would have

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Removal of Bricks Which Have Sunk in in the Vault of a Tunnel Furnace SOV/72-59-8-14/17

resulted in great production losses.

ASSOCIATION: Leningradskiy farforovyy zavod "Proletariy" (Leningrad Chinaware Plant "Proletariy")

Card 2/2

S/115/62/000/007/008/008
E194/E455

AUTHOR: Smirnov, V.V.

TITLE: A capacitative follow-up level meter

PERIODICAL: Izmeritel'naya tekhnika, no.7, 1962, 49-50

TEXT: This instrument is intended for continuous automatic reading of level or of the boundary of separation between two phases having different dielectric properties. It is particularly intended for use with mineral slurries in ore flotation plants where there is a sharp boundary between the clarified liquid and the slurry. Graphs are plotted of the pick-up capacitance as a function of slurry concentration for a number of minerals. The parallel plates of the pick-up carry a thin film to insulate them electrically from the liquid phase. The capacitance of the pick-up is a function of its position relative to the plane of phase separation. The pick-up is in one arm of a capacitance bridge and a similar pick-up located in clarified liquid is placed in the opposite arm to cancel the effect of changes in the ionic composition of the slurry. The bridge feeds a phase-sensitive amplifier which controls a miniature reversible electric hoist.

Card 1/2

PONOMARENKO, V.I.; SAYFULLIN, R.Z.; SMIRNOV, V.V.

Floating chain level indicator. Priborostroenie no.10:22-23 O '63. (MIRA 16:11)

KHAN, G.A.; SMIRNOV, V.V.; ZAZNOBIN, M.G.

Method of automatically controlling the turbidity of a thickener overflow. Obog. rud 7 no.2:39-42 '62. (MIRA 16:4)
(Ore dressing) (Automatic control)

GERASIMOV, V.V.; GROMOVA, A.I.; GOLOVINA, Ye.S.; MOSKVICHEV, G.S.; PAVLOVA, F.S.; SMIRNOV, V.V.; SHAPOVALOV, E.T.; PANASENKOVA, Ye.I., red.; MAZEL', Ye.I., tekhn. red.

[Corrosion and irradiation] Korroziia i obluchenie. [By] V.V.Gerasimov i dr. Moskva, Gosatomizdat, 1963. 267 p. (MIRA 16:11)

(Corrosion and anticorrosives)
(Materials, Effect of radiation on)

SMIRNOV, Viktor Vasil'yevich; MARIENSKIY, Ye., red.; KURLYKOVA, L., tekhn. red.

[Listen to the bells of the clamorous battle] Slushai kolokola gromkogo boia. Moskva, Molodaia gvardiia, 1961. 141 p. (MIRA 17:4)

SMIRNOV, V.V.

Role of the microbiological factor in the increase of the corrosive aggressiveness of mine waters of the Kizel coal basin. Mikrobiologiia 32 no.4:695-699 Jl-Ag '63. (MIRA 17:6)

1. Permskiy universitet.

SMIRNOV, V.V.

New developments in turpentining. Gidroliz. i lesokhim. prom. 18 no.5:27-28 '65. (MIRA 18:7)

1. Sarapul'skoye lesokhimicheskoye khozyaystvo.

SMIRNOV, V.V.

Samolet "Razdvizhnoe krylo". (Grazhdanskaia aviatsiia, 1938, no.6, p.31-37, illus.)

Title tr.: "Variable wing" airplane.

TL504.G7 1938

So: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

SHIRNOV, V. V., and I. T. STIVAK

O podbore gorizontal'nogo opereniia s shaitami na kontsakh razmakha. (Tekhnika vozdushnogo flota, 1940, no. 7, p. 59-71, tables, diagrs.)

Title tr.: Selection of a horizontal tail surface wit tip fins.

TL504.T4 1940

SO: Aeronautical Sciences and Aviation in the Soviet Union, Library of Congress, 1955.

SMIRNOV, V. V.

Priblizhennaia otsenka poletnogo vesa i nym chislom rabotaiushchikh motorov. (Tekhnika vozdushnogo flota, 1945, no. 9, p. 16-19, tables, diagrs.)

Title tr.: Approximate evaluation of gross weight and controllability of a multiengined airplane with some of the engines cut-off.

TL504.T4 1945

GERSHUNSKIY, Boris Semenovich; GORELIK, A.L., kand. tekhn. nauk, retsenzent; SMIRNOV, V.V., prepodavatel , retsenzent; BALYASNAYA, A.Ye., red.; MIRONETS, Ye.M., red.

[Principles of electronics and semiconductor technology] Osnovy elektronnoi i poluprovodnikovoi tekhniki. Kiev, Izd-vo Kievskogo univ., 1964. 322p. (MIRA 17:10)

1. Zaveduyushchiy kafedroy "Elektronnyye i ionnyye pribory" Khar'kovskogo Instituta gornogo mashinostroyeniya, avtomatiki i vychislitel'noy tekhniki (for Gorelik). 2. L'vovskiy tekhnikum radioelektroniki (for Smirnov).

VOSPOLIT, V.G.; SMIRNOV, V.V., redaktor; FEYTEL'MAN, N.G., redaktor; SABITOV, A., tekhnicheskiy redaktor.

[Improving work organization and production norms in mining] Uluchshat' organizatsiiu i normirovanie truda na shakhte. Moskva, Ugletekhizdat, 1954. 57 P. (MLRA 8:3)
(Coal mines and mining)

TOTMAKOV, Anatoliy Vasil'yevich, dotsent; SMIRNOV, V.V., otvetstvennyy redaktor; FEYTEL'MAN, N.G., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Organization of management in the coal industry of the U.S.S.R.] Organizatsiia upravleniia v ugol'noi promyshlennosti SSSR. Moskva, Ugletekhizdat, 1956. 28 p. (MLRA 9:7)
(Coal mines and mining)

BOKIY, Orest Borisovich, dotsent; MOROZOV, Aleksandr Ivanovich, dotsent; MORDUKHOVICH, Mikhail Vladimirovich, dotsent; CHETYRKIN, M.I., otvetstvennyy redaktor; SMIRNOV, V.V., otvetstvennyy redaktor; MIKHEYEV, G.F., redaktor izdatel'stva; KOROVENKOVA, Z.A., tekhnicheskiy redaktor; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Organization and planning of work in auxiliary sectors and plants of mines] Organizatsiia i planirovanie raboty vspomogatel'nykh uchastkov i tsekhov shakhty. Moskva, Ugletekhizdat, 1956. 310 p. (MLRA 9:12)
(Coal mines and mining)

USATOV, Georgiy Afanas'yevich; SMIRNOV, V.V., otvetstvennyy redaktor; FEYTEL'MAN, N.G., redaktor izdatel'stva; DODEVA, G.V., redaktor izdatel'stva; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Struggle for increased labor productivity; practices of mines of the Nesvetay Anthracite Trust] Bor'ba za povyshenie proizvoditel'nosti truda; opyt raboty shakht tresta Nesvetaiantratsit. Moskva, Ugletekhizdat, 1957. 66 p. (MLRA 10:9)
(Labor productivity) (coal mines and mining)

L 37210-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/WB

ACC NR: AP6023446 SOURCE CODE: UR/0369/66/002/003/0304/0307

AUTHOR: Smirnov, V. V.; Pokhmurskiy, V. I.; Boltarovich, A. V.

ORG: Physicomechanical Institute, AN UkrSSR, L'vov (Fiziko-mekhanicheskiy institut AN UkrSSR)

TITLE: Physicomechanical and corrosion properties of heat-resistant EP-479 stainless steel

SOURCE: Fiziko-khimicheskaya mekhanika materialov, v. 2, no. 3, 1966, 304-307

TOPIC TAGS: stainless steel, heat resistant steel, chromium steel, nickel containing steel, manganese containing steel, silicon containing steel, molybdenum containing steel, nitrogen containing steel, steel property/EP 479, Kh17N2 steel

ABSTRACT: The new EP-479 stainless steel, containing 0.12—0.18% C, 15—16.6% Cr, 2—2.5% Ni, 0.6% max Mn, 0.6% max Si, 1.2—1.5% Mo, and 0.05—0.10% N_2, is intended for parts used in the chemical and aircraft industry operating at temperatures up to 500C and was developed as a substitute for Kh17N2 steel, which is not suitable for operation at temperatures above 400C. The best combination of properties in EP-479 steel is achieved by annealing at 1040C followed by oil quenching and tempering at 570 or 650—680C. At 20, 400, or 500C, EP-479 steel has a respective tensile strength of 120, 98, and 80 dan/mm^2; a yield strength of 90, 80, and 70 dan/mm^2; an elongation of 12, 14, and 12%; a reduction of area of 50, 60, and 65%; and

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Card 2/2 mcP

ACC NR: AP7006473 SOURCE CODE: UR/0415/66/000/004/0102/0105

AUTHOR: Smirnov, V. V.

ORG: Institute of Mining SO AN SSSR, Novosibirsk (Institut gornogo dela SO AN SSSR)

TITLE: On some mechanical properties of rocks in the strip pit of the Barandat deposit in the Kan-Achensk Basin

SOURCE: Fiziko-tekhnicheskiye problemy razrabotki poleznykh iskopayemykh, no. 4, 1966, 102-105

TOPIC TAGS: mining engineering, tensile strength, compressive strength, hardness, solid mechanical property

ABSTRACT: Some of the physical and mechanical properties of rocks in the strip pit of the Barandat deposit in the Kan-Achensk Basin were determined as a basis for establishing relationships between the basic characteristics of rocks in this deposit. The following empirical formulas are derived for the interrelationship between tensile and uniaxial compressive strength and punch hardness: $\sigma_{comp}=14.3\sigma_{tens}$, $\sigma_{comp}=7.3h_p$, $h_p=1.73\sigma_{tens}$. The validity of these relationships is established by the methods of probability theory and mathematical statistics. These formulas may be used to evaluate the properties of rocks in the Barandat deposit with satisfactory accuracy. Orig. art. has: 4 figures, 1 table, 5 formulas.

SUB CODE: 11, 08 / SUBM DATE: 080ct65/ ORIG REF: 006

Card 1/1 UDC: 622.831(571.51)+622.01.013

SMIRNOV, V.V.; SUKACHEV, V.N., akademik.

Certain peculiarities of the vegetative reproduction of aspen. Dokl.AN SSSR 90 no.5:909-912 Je '53. (MLRA 6:5)

1. Institut lesa Akademii nauk SSSR (for Smirnov). 2. Akademiya nauk SSSR (for Sukachev). (Aspen)

SMIRNOV, V. V.

"Replacing Oak with Aspen on the Cutover Areas of the Southern Forest Steppes and Measures for Its Regulation." Cand Agr Sci, Inst of Forestry, Acad Sci USSR, Moscow, 1954. (KL, No 3, Jan 55)

Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (13)
SO: Sum. No. 598, 29 Jul 55

SMIRNOV, V.V.

USSR/ Biology - Plant ecology

Card 1/1 Pub. 22 - 48/56

Authors : Smirnov, V. V., and Odinokova, N. S.

Title : Hydrological role of aspen forests

Periodical : Dok. AN SSSR 99/5, 849-852, Dec 11, 1954

Abstract : Scientific data regarding the hydrological role of aspen trees, planted under identical soil-geomorphological conditions, are presented. The physical properties of soil best suited for the planting of aspen trees are tabulated. Ten USSR references (1846-1953). Tables; graph.

Institution: Academy of Sciences USSR, Forest Institute

Presented by: Academician V. N. Sukachev, October 11, 1954

SMIRNOV, V.V.

Vegetative propagation of aspen trees in the mountainous part of the Tellermanskoye Forest. Trudy Inst.lesa 40:5-52 '59.
(MIRA 12:10)

(Balashov Province--Aspen)

SMIRNOV, V.V.

Distribution of needles by age in Picea excelsa Link growing in pure spruce and mixed spruce-deciduous stands of the taiga zone. Bot. zhur. 45 no.10:1522-1530 O '60. (MIRA 13:11)

1. Laboratoriya lesovedeniya Akademii nauk SSSR, selo Uspenskoye Moskovskoy oblasti.
(Spruce) (Leaves)

KALMAKOV, A. A. (eng), POLKIN, S. I. (Prof, Dr.Eng.), KHAN, G. A. (eng student), SMIRNOV, V.V.

"The use of radioisotopes for the determination of the contents of certain metals in the products of ore dressing."

report submitted for 6th Intl Mineral Processing Cong, Cannes, 26 May-2 Jun 63.

Kalinin Inst Non-Ferrous Metals & Gold, Moscow.

TITOV, A.I., SMIRNOV, V.V.

Chemistry, Organic - Synthesis

Effect of complex formation, ionization, and isomerization of organic substances on their chemical activity during nitration. Synthesis of phenyltrinitromethane and its properties. Dokl. AN SSSR 83 no. 2 (1952)

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

SMIRNOV, V.V.

AUTHOR TITOV A.I.,VEREMEYEV G.N., SMIRNOV V.V., SHAPILOV O.D.

TITLE A New Substitution Reaction of Alkohol Hydroxyl For Fluorine And Its Use. 20-2-32/67
(Novaya reaktsiya zameny spirtovogo gidroksila na ftor i yaye primeneniye -Russian)

PERIODICAL Doklady Akademii Nauk SSSR,1957,Vol 113,Nr 2,pp 358-36o(U.S.S.R.)
Received 6/1957 Reviewed 7/1957

ABSTRACT The generally known reactions for obtaining haloid alkyls, especially the influence of fluorine hydrogen and fluorine phosphate compounds,turn out to be of little use for the immediate replacement of alcohol hydroxyls by fluorine. Appropriate methods must still be found. In 1942 one of the authors together with A.N. Baryshnikova had the possibility to carry out such a replacement in a single phase. It concerned the transformation of ethylene chlorohydrin into 1.2-fluorine-chloro-ethane when being boiled with a mixture of benzol-sulfofluoride and fluorine potassium. Also the reaction mechanism was demonstrated. The reaction passes the following phases: 1. An alcoholate develops, 2. acylation by a sulfofluoride under formation of alkyl sulfonate follows.The partial formation of sulfonates without the presence of fluorine potassium is also possible on the occasion of sulfofluoride acting on alcohols.3. In the last phase the alkylation of the fluorine potassium takes place, as already known. Secondary processes can take place at the same time in the course of which simple ethers and unsaturated compounds develop or their polymerization takes place respectively.

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S/079/61/031/009/007/012
D215/D306

5.4300 2209, 2409

AUTHORS: Petrov, K.A., Smirnov, V.V., and Yemel'yanov, V.I.

TITLE: Alkylation and arylation of white phosphorus

PERIODICAL: Zhurnal obshchey khimii, v. 31, no. 9, 1961, 3027 - 3030

TEXT: The authors for the first time carried out direct alkylation and arylation of white phosphorus without catalysts or activating additives. Heating benzyl chloride with white phosphorus at 300°C for 4 hrs. gave benzyldichlorophosphine. It may be assumed that alkylation and arylation reaction proceed according to a free radical mechanism as in both alkyl and aryl halides. C - Halogen bond may undergo homolytic splitting. The free radicals formed attack the white phosphorus molecule, whose structure is a tetrahedran with P atoms at each apex; this decomposes into two P_2 molecules only at 800°C. In the initial stages of alkylation and arylation the splitting of P - P bond occurs under the action of free radi-

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Alkylation and arylation of ...

cals to form a tetraphosphorus - alkyl - or aryl halide which on renewed attack causing breaking of P - P bonds converts to a halophosphonate

$$P_4 + 3C_6H_5\dot{C}H_2 + 3\dot{C}l \rightarrow C_6H_5CH_2PCl_2 + (C_6H_5CH_2)_2PCl.$$

The authors established a relation between the stability of the free radical and the minimum temperature, at which the reaction occurs by introducing the following groups into the reaction

$$C_6H_5\dot{C}H_2 < C_6H_5\dot{C}HCH_3 < (C_6H_5)_2\dot{C}H < (C_6H_5)_3\dot{C},$$

the stability of which increases from left to right. The temperature of the reaction decreases on passing from haloderivatives forming less stable radicals, to haloderivatives giving more stable radicals; for benzyl chloride the temperature is 300°C, for 1-chlorophenylethane 270°C, for diphenyl-chloromethane 250°C, and for triphenylchloromethane 225°C. Aralkylation of white phosphorus with benzyl chloride was conducted in a sealed tube heated at 300° C for 4 hrs. Distillation yielded three fractions, the second

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being identified as benzyl dichlorophosphine. This was dissolved in CCl_4 and nitrogen oxides passed through the solution to give benzylphosphinic acid dichloride, b.pt. 130°C/2 mm. Hydrolysis of the latter by refluxing with water yielded white crystalline benzylphosphinic acid, m.pt. 166-166.5°C. The third fraction, b.pt. 234-236°C/12 mm was identified as dibenzylchlorophosphine. The distillation residue after boiling with alkaline H_2O_2, neutralization and acidification gave dibenzylphosphinic acid. Arylation of white phosphorus with bromobenzene using a similar method gave phenyldibromophosphine, diphenylbromophosphine and triphenylphosphineoxide. Arylation with m-bromotoluene gave m - toluyldibromophosphine b.pt. 110-111°C/2 mm and di-m-toluylbromophosphine, b.pt. 141-142°C/2 mm. Alkylation with n-octyl bromide produced n-octyldibromophosphine b.pt. 72°C/22 mm and di-n-octylbromosphosphine b.pt. 140°C/11 mm. There are 10 non-Soviet-bloc references. The references to the English language publications read as follows: O. Masson, J.B. Kirkland, J. Chem. Soc., 55, 138, 1870; F.W. Bennet, H.J. Emeleus, R.

VORGL'YEV, S.P.; DAVYDOV, I.P.; SMIRNOV, V.V.

Solution of magnesium in an ammonium nitrate solution. Zhur. neorg. khim. 9 no.9:2159-2162 S '64.
(MIRA 17:11)

SMIRNOV, V.V., dotsent; BUR'YANOV, V.F., kandidat tekhnicheskikh nauk.

"Mechanical equipment of rolling mills." A.A.Korolev, G.M.Nikolaevskii. Reviewed by V.V.Smirnov, V.F.Bur'ianov. Stal' 15 no.3: 286-287 Mr '55. (MLRA 8:5)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche im. Baumana (for Smirnov). 2. Vsesoyuznyy zaochnyy politekhnicheskiy institut (for Bur'yanov).
(Rolling-m'll machinery) (Korolev, A.A.) (Nikolaevskii, G.M.)

SMIRNOV, V.V., kandidat tekhnicheskikh nauk.

Investigation of acting forces in rolling friction-bearing raceways. (MLRA 9:7)
[Trudy] MVTU no.62:74-109 '55.
(Rolling (Metalwork)) (Bearings (Machinery))

SMIRNOV, V V

25 (1) PHASE I BOOK EXPLOITATION SOV/292

Moscow. Vyssheye tekhnicheskoye uchilishche. Kafredra "Mashiny i tekhnologiya prokatki i volocheniya"

Prokatnyye stany i tekhnologiya prokatki; sbornik statey (Rolling Mills and Methods of Rolling; Collection of Articles) Moscow, Mashgiz, 1957. 125 p. (Series: Moscow. Vyssheye tekhnicheskoye uchilishche. /Trudy/ vyp. 80) 4,000 copies printed.

Ed.: M.L. Zaroshchinskiy, Doctor of Technical Sciences, Professor; Tech. Ed.: Ye.N. Matveyeva; Managing Ed. for Literature on Heavy Machine Building: Ya.S. Golovin, Engineer.

PURPOSE: This collection of articles is intended for the personnel of scientific research institutes, engineers, designers, teachers and students specializing in rolling methods and the building of rolling mill machinery.

COVERAGE: Theoretical and experimental studies done by the scientific workers of the department of "Machinery and methods of rolling and drawing" of MVTU (Moscow Higher Technical School) imeni Bauman are published in this collection.

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SOV/292

Rolling Mills and Methods of Rolling

The articles deal with the following topics: spreading of stock in rolling and distribution of stresses and spread along the width of the stock, resistance to deformation in metal forming, change of the form of the strip depending on dimensions of the contact area in rolling in plain rolls; the theory of elastoplastic bending of a strip during straightening on a multiroll machine, investigation of basic parameters characterizing the resistance of material to rolling; simplified formula for spreading, and measuring unit pressure along the arc of contact using strain gages. No personalities are mentioned. There are 41 references, 39 Soviet and 2 English.

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137-58-6-12147

Translation from. Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 139 (USSR)

AUTHOR: Smirnov, V.V.

TITLE: On the Theory of Design and Analysis of Power Trains for Leveling Machines With Skew Rolls (K teorii rascheta moshchnosti privoda pravil'nykh kosovalkovykh mashin)

PERIODICAL: V sb.: Prokatn. stany i tekhnol. prokatki. (MVTU, 80). Moscow, Mashgiz, 1957, pp 50-56

ABSTRACT: The author examines the design of a machine capable of two cycles of leveling (L) operations in accordance with the two possible flexions of the axis of the metal by the action of the primary rollers (R). The pressure of these R's is determined successively from the conditions of equilibrium of the moments of external forces as in the case of a beam with many supports. As in the general case, the pressures of the R's in a two-cycle L machine are proportional to the plastic resisting moment and inversely proportional to the advance of the R's. The problem of determination of the power (N ℓ) necessary for the L operation presents considerable difficulties and necessitates the determination of two power components, the first of which

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137-58-6-12147

On the Theory of Design and Analysis of Power Trains (cont.)

depends only on the motion of translation of metal N_{trans}, while the second one is dependent only on the rotary motion, N_{rot}. It is suggested that N_{trans} be determined by the method commonly used for standard machines employed for longitudinal L. N_{trans} is expressed as a sum of the products of the bending moments and the angular velocity of bending of metal with residual curvature. A formula is derived for the determination of N_{rot}. In order to calculate the rotary power it is essential that the values of the nominal lengths of the regions of metal undergoing plastic deformation be determined. By employing the relation between the sides of a moment triangle, as derived by A.D. Kuz'min, these lengths are found to be equivalent to 0.4 of the advance of the R's. Next, the final value of the L moment is obtained by means of simultaneous solution of the equation $N_s = N_{trans} + N_{rot}$ together with a number of other equations. All computations are based on the assumption of dealing with a material with ideal elastic-plastic properties; however, in order to achieve better accuracy it is desirable that σ_s values be replaced by actual values of resistance to deformation with proper allowances for its magnitude and velocity and the temperature of the metal. A number of mathematical relationships are proposed for this purpose.

1. Rolling mills--Design 2. Rolling mills--Theory 3. Rolling mills--Equipment

A.N.

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SMIRNOV, M. V.

9994 21

THERMODYNAMICS OF MOLTEN MIXTURES OF ALKALINE METAL CHLORIDES AND THORIUM TETRACHLORIDE. M. V. Smirnov and L. E. Ivanovskii (Sverdlovsk (Ural) Electrochemical Lab, Acad. of Science). Zhur. Fiz. Khim. 31, 640-7(1957) Mar. (In Russian)

The equilibrium potentials of Th–Zn alloy electrode against a chlorine electrode were measured in molten eutectic mixtures of Li and K chlorides containing 2.98 to 40× 16% by weight $ThCl_4$ and in pure molten $ThCl_4$ at 840°C. It was observed that melts with less than 25% by weight of $ThCl_4$ behave as ideal solutions. Equations were developed for the temperature and concentration dependence of the electrode potential Th/Th^{+4} in molten mixtures of alkaline metal chlorides of less than 25% by weight $ThCl_4$ with respect to the chlorine electrode. (R.V.J.)

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MT

PHASE I BOOK EXPLOITATION SOV/3226

Mezhvuzovskaya nauchno-tekhnicheskaya konferentsiya na temu: "Sovremennyye dostizheniya prokatnogo proizvodstva."

Trudy...(Transactions of the Intercollegiate Scientific and Technical Conference on Recent Achievements in the Rolling Industry) Leningrad, 1958. 251 p. 1,000 copies printed.

Sponsoring Agencies: Leningradskiy politekhnicheskiy institut im. M.I. Kalinina, Nauchno-tekhnicheskoye obshchestvo mashinostroiteley, Leningradskoye otdeleniye, and Nauchno-tekhnicheskoye obshchestvo metallurgov, Leningradskoye otdeleniye.

Resp. Ed.: V.S. Smirnov, Doctor of Technical Sciences, Professor; Ed.: N.N. Pavlov.

PURPOSE: These proceedings of the conference are intended for specialists in the rolling industry.

COVERAGE: The articles of this collection cover various theoretical and practical problems of rolling, such as: pressure, spread, efficiency of rolls, determination of deformation, forces required,

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Transactions of the Intercollegiate (Cont.) SOV/3226

pass design, optimum conditions for rolling, experiences of various plants, modernization of equipment, aluminum-clad steel, and rolling of nonferrous metals. No personalities are mentioned. References appear after each article.

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AVAILABLE: Library of Congress (TS340.m42)

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SMIRNOV, V.V.

25(2) PHASE I BOOK EXPLOITATION SOV/1329

Tselikov, Aleksandr Ivanovich, Corresponding Member, USSR Academy of Sciences and Viktor Viktorovich Smirnov, Candidate of Technical Sciences, Docent

Prokatnyye stany (Rolling Mills) Moscow, Metallurgizdat, 1958. 432 p. 13,500 copies printed.

Ed.: Korolev, A.A.; Ed. of Publishing House: Sidorov, V.N., Engineer; Tech. Ed.: Islent'yeva, P.G.

PURPOSE: This book is approved by the USSR Ministry of Higher Education as a textbook for metallurgical and for machine-building institutes and may be helpful to machinists, processing engineers, designers and engineers working in manufacturing and in design offices.

COVERAGE: The design and construction of rolling mills, their mechanisms and individual parts are examined in the book. The authors present their own theories on a number of problems pertaining to the field of design loads and design stresses in various kinds of rolling mill machinery. The chapter on lubricating equipment was written by Engineer M.P. Vavilov. The authors thank Docent A. A. Korolev, Candidate of Technical Sciences, for editing the book. Many illustrations are published for the first time; some of them are reprinted from the book written by A. A. Korolev and G. M. Nikolayevskiy, Mekhanicheskoye oborudovaniye prokatnykh tsekhov (Mechanical Equipment

Card 1/14

Card 6/ 14

Rolling Mills

SMIRNOV, V. V.

"Investigation of the Stresses at Hot Expansion of the Raceways of Rolling Friction Bearings." Sub 29 Jan 51, Moscow Order of the Labor Red Banner Higher Technical School imeni Bauman

Dissertations presented for science and engineering degrees in Moscow during 1951.

SO: Sum. No. 480, 9 May 55

SOV/133-58-12-11/19

AUTHOR: Smirnov, V.V. (Candidate of Technical Science, Dotsent)

TITLE: Some Special Features of Rolling Practice in the Chinese People's Republic (Osobennosti prokatnoy tekhniki Kitayskoy Narodnoy Respubliki)

PERIODICAL: Stal', 1958, Nr 12, pp 1118-1121 (USSR)

ABSTRACT: Some engineering features of the continuous linear wire rod rolling mill (Swiss Succo) in Shanghai (Fig 1), in particular tangentially fed coilers (Figs 2 and 3, made by Demag) and some Chinese original designs such as chain turn-over device (Fig 4) and twin tables for servicing two-roll stands of a sheet rolling mill (Fig 5) are described.
There are 5 figures.

ASSOCIATION: MVTU imeni Bauman

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AUTHORS: Pevzner, M.L., Smirnov, V.V.

TITLE: Copper-plating in a pyrophosphate electrolyte in the ultrasonic field

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 22, 1961, 73-74, abstract 22B444 ("Tr. Proyektn., tekhnol. i n.-i. in-ta Gor'kovsk. sovnarkhoz", 1959, no. 1, 22 - 30)

TEXT: The authors present the results of investigations carried out at the Gor'kovskiy avtozavod (Gor'kiy Automobile Plant) on the copper-plating in a pyrophosphate electrolyte using ultrasonics. The investigations were carried out on an experimental bath production line. In the latter a vinylplastic-lined steel bath 650 x 980 x 860 mm was installed, this bath having a volume of 450 liters at an electrolyte level of 760 mm. The electrolyte was heated by a stainless steel coil pipe placed on the bath bottom. The ultrasonic power sources were 2 tube generators of the ГУМ-2 (GUM-2) and ГУМ-2 М (GUM-2M) type with an output power of 1.5 kw each. The emitters with nickel magnetostrictive НЭЛ-4 (NEL-4) converters were suspended at the transverse side of the bath, two on each

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side. For a uniform sound treatment of the parts being coated the emitters were arranged one over the other. The emitter position in the bath was not changed. For tests with a high specific ultrasonic power a bath of 60 liters capacity was used. On its bottom an emitter of 1.5 kw h-f input power was placed. The direction of the sound beam was horizontal. The copper-plating of steel parts was carried out in an electrolyte of the following composition (in g/liter): $CuSO_4 \cdot 5H_2O$ - 35, $Na_4P_2O_7 \cdot 10H_2O$ - 140, $Na_2HPO_4 \cdot 12H_2O$ - 95 and also $CuSO_4 \cdot 5H_2O$ - 13.4, $Na_4P_2O_7 \cdot 10H_2O$ - 53, $Na_2HPO_4 \cdot 12H_2O$ - 36.4; $CuSO_4 \cdot 5H_2O$ - 70, $Na_4P_2O_7 \cdot 10H_2O$ - 200, $Na_2HPO_4 \cdot 12H_2O$ - 95, It is shown that the optimum pH-value of the electrolyte corresponding to the conditions of good efficiency and ensuring a good adhesion between the coating and the steel base, should be 6.6. With an increase in the electrolyte temperature up to 45°C at a pH-value of 6.6 and a specific ultrasonic power of 3.5 w/l, the cathode current density limit grows up to 6 amp/dm^2. A further temperature increase of the electrolyte does practically not result in a cathode current density rise. High-quality fine-grained deposits are obtained in an electrolyte with a copper concentration of 35 g/l $CuSO_4 \cdot 5H_2O$ at a current density of 6 amp/dm^2. An increase in the concentration up to 70 g/l ensures an operation at a current density of up to 8 amp/dm^2, but the coating produced is coarse-grained at a layer thickness of more

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than 10 μ. The copper plating obtained from pyrophosphate electrolytes using ultrasonics possesses practically the same porosity as a copper coating from cyanogen electrolytes with current reversal. The process of pyrophosphate copper-plating using ultrasonics can be expediently applied to replace the copper-plating process in cyanogen electrolytes, if between steel base and nickel coating an intermediate layer of 7 - 8 μ is produced and for the copper-plating of steel parts with a thickness of 35 - 40 μ with subsequent polishing of the obtained coating. The throwing power of the pyrophosphate electrolyte does not permit its use for the preliminary application of a copper layer on steel parts prior to copper-plating in an acid electrolyte. There are 4 references.

N. Savina

[Abstracter's note: Complete translation]

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TSELIKOV, A.I.; SMIRNOV, V.V.

History of the development of Russian rolling-mill machinery manufacture. Trudy Inst. ist. est. i tekh. 21:3-43 '59. (MIRA 13:3)

(Rolling mills)

25(1)

SOV/148-59-2-21/24

AUTHOR: Smirnov, V.V., Docent

TITLE: A Propos of an Article by V.M. Grebenik On "The Dependence of Deformation, Moments and Accuracy of Straightening on the Adjustment of Straightening Machines" (Po povodu stat'i V.M. Grebenika "Zavisimost' deformatsii, momentov i tochnosti pravki ot nastroyki pravil'noy mashiny")

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Chernaya metallurgiya, 1959, Nr 2, pp 157-160 (USSR)

ABSTRACT: The author states his opinion on the article mentioned above, published by V.M. Grebenik in a previous copy of the periodical. He discusses some conclusions made by Grebenik and includes recommendations on the subject. The following points are discussed: deformation magnitude in straightening; combined adjustment of rolls; and computation of the straightening force. There is 1 set of graphs.

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