"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, N.V.

BARON, L.I., doktor tekhn. nauk; KURBATOV, V.M., nauchnyy sotrudnik; ORLOV, N.V., nauchnyy sotrudnik.

Effect of size correlation of rock samples on temporary resistance to crushing. Gor. zhur. no.2:17-19 F '58. (MIRA 11:3)

1. Institut gronogo dela AN SSSR.
(Rocks--Testing)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.V., inzh.; USACHEV, V.A., inzh.

Testing the inflammability of dust-air mixtures. Bezop.truda v prom. 2 no.10:19-20 O '58. (MIRA 11:11)
(Mine dusts)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.V.

BELYAYEV, A.F.

AUTHOR: Solomonov, M. SOV/20-58-5-30/31

TITLE: Scientific-Method Conference on the Problem of Breaking-up Rocks by Explosions (Pervoye nauchno-metodicheskoye soveshchaniye po probleme drobleniya gornykh porod vzryvom)

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, Nr 5, pp 143-144 (USSR)

ABSTRACT: On February 24-26, 1958 a conference was held on breaking-up rocks by explosions at the Institute of Mining, Ac.Sc., USSR (Institut Gornogo Dela AN SSSR). 100 people from 32 towns participated and the participants included representatives of Works, Research Institutes of the Ac.Sc. from various parts of the Soviet Union, departmental research institutes and of higher teaching establishments.

[illegible] papers were presented:
"A new test for the examination of explosives in crushing operations" by L. I. Baron, B. D. Rossi, Institute of Mining, Ac.Sc. USSR;
"An investigation of the brisancy according to Hess as a characteristic of the properties of explosives in breaking-up rocks" by S. P. Levichik, Institute of Mining, Ac.Sc., USSR;
"On the influence of the explosive characteristics of explosives on the quality of breaking down of highly fissured and flooded rocks" by V. I. Mosinets, Institute of Non-Ferrous Metals and Gold;
"On the laboratory technique of determining the breaking-up of rocks" by L. I. Baron, R. V. Orlov, V.N.Kubatov, Institute of Mining, Ac.Sc. USSR.
In the section relating to determining the dimensions of fragments the following papers were presented:
"On the quantitative indices of the quality of breaking-up of rocks and the technique of their determination during work with explosives in railroad construction." by Kh. Kh. Rodov, USSR;

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

AUTHORS: Orlov, R. V., Kurbatov, V. M. SOV/32-24-10-38/70

TITLE: A Dynamometer for Measuring the Forces Engaged in an Impact Effect on Samples of Cylindrical Shape (Dinamometr dlya izmereniya sil pri udarnom vozdeystvii na obraztsy tsilindricheskoy formy)

PERIODICAL: Zavodskaya Laboratoriya, 1958, Vol 24, Nr 10, pp 1265-1265 (USSR)

ABSTRACT: A dynamometer was constructed (the diagram of which is given) which serves for the investigations mentioned in the title, and which may be used for samples of different materials. The anvil and the membrane of the dynamometer (carrying out the transfer of force) are made of steel of type ЭИ thermally treated up to a hardness of 50 R_C. The cell recording the deformation of the membrane after the impact is connected to three analogous wire-cells according to an ordinary bridge scheme. The bridge is fed by a generator which takes the voltage of the sound frequency. The electric pulse formed on the impact upon the sample is amplified and transmitted to the oscillograph МПО-2. The oscillogram of the impact of a 15 kg weight from a height of 10 cm upon a gypsum sample is given as an example. The maximum

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A Dynamometer for Measuring the Forces Engaged in an Impact Effect on Samples of Cylindrical Shape

stress is 960 kg/cm^2, the duration of impact is 6,3 msec. There are 2 figures.

ASSOCIATION: Institut gornogo dela Akademii nauk SSSR (Mining Institute AS USSR)

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

14(1) SOV/67-59-5-3/30

AUTHORS: Graubits, Zh. K., Candidate of Technical Sciences (Deceased), Orlov, R. V., Candidate of Technical Sciences

TITLE: Utilization of Oxyliquites in Mining

PERIODICAL: Kislorod, 1959, Nr 5, pp 12 - 15 (USSR)

ABSTRACT: Oxyliquites prepared by soaking , cellulose or porous carbon material with liquid oxygen and representing most effective explosives, found a wide range of application in open working also in USSR (Dneproges, 1927, and Noril'skiy gornometallurgicheskiy kombinat (Noril'sk Mining-metallurgic Kombinat), 1943-1955). The application of oxyliquite in underground working has not yet been attempted in spite of this long experience. In the present paper, investigations of the possibility of using oxyliquite for underground explosions were made based on experiences gained in open working, and the productivity of this application is discussed. Working with oxyliquite is relatively simple, only due to the short life of the material particular calculations concerning the charging of boreholes with oxyliquite cartridges are necessary. The raw materials for oxyliquite have to be processed to cartridges

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in an oxyliquite plant situated in the mines. The charging which takes 7-8 minutes for 30 boreholes of 1.7 - 1.9 m is below the life limit (15 minutes). The cost of production for 1 ton of oxyliquite amounts to 818 roubles which only comes up to 2/3 - 1/2 of the price of usual explosives. Especially in districts which are not accessible by rail, and in which in mining regions an oxygen plant for liquid oxygen can be established, cost is considerably reduced. Another handicap to this application was the frequently observed exploding of the charge. The reason was found to be the impact effect on the cartridge in filling the boreholes. By careful loading, explosion may be avoided. For the further development of oxyliquite application in underground working, especially in drawing of useful minerals, directions will be elaborated by the Interdepartmental Commission of Explosives at the Mining Institute of the AS USSR. There are 7 references, 5 of which are Soviet.

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

SOV/32-25-3-43/62

25(2)
AUTHORS: Baron, L. I., Kurbatov, V. M., Orlov, R. V.

TITLE: Pendulum Impact Testing Machine for the Determination of the Energy Capacity of Demolition (Mayatnikovyy koper dlya opredeleniya energoyemkosti razrusheniya)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 361-362 (USSR)

ABSTRACT: In the case of sample demolitions especially of rocks, due to impacts, only part of the impact energy can be transformed into demolition energy. In order to determine this part of the energy, a special pendulum impact testing machine was designed (Fig 1). The device has a pendulum anvil to which the rock sample is attached, and a pendulum hammer. Both pendulums are freely suspended on thin steel wire and can revolve in ball bearings around a fixed axle. By means of this device the energy amount, which is absorbed by cylindrical samples in the demolition process, as a function of the height of these samples was investigated. A diagram of the values obtained by the testing of concrete samples with an impact energy of 6 kgm is given (Fig 2). In the demolition process the absorbed energy mounts in proportion with the height of the sample and gradually approaches a constant value.

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

Pendulum Impact Testing Machine for the Determination of the Energy Capacity of Demolition

SOV/32-25-3-43/62

Investigations showed that the part of the energy which is absorbed at the demolition of the samples is approximately the same for various brittle materials, and is about 70% of the entire impact energy under the above mentioned conditions. There are 2 figures.

ASSOCIATION: Institut gornogo dela Akademii nauk SSSR
(Institute of Mining, Academy of Sciences, USSR)

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APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

DOLGOV, O.A., inzh.; ORLOV, R.V., kand.tekhn.nauk

Estimating the accuracy of calculating the distribution of brine temperature in refrigeration pipes by the method of hydraulic analogies. Nauch. soob. IGD 17:16-21 '62. (MIRA 16:7)
(Soil freezing) (Hydraulic models)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.V.; SARATOVSKIY, E.G.

Calculation techniques and cybernetics in mining engineering. Ugol' 37 no.3:11-15 Mr '62. (MIRA 15:2)

1. Institut gornogo dela im. A.A.Skochinskogo.
(Mining engineering) (Cybernetics)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.V., kand.tekhn.nauk

Using calculating machines to study the parameters of mining machines and mechanisms. Nauch.soob. IGD 22:3-16 '63.
(MIRA 17:5)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ALEYNIKOV, B.I., inzh.; ORLOV, R.V., kand. tekhn. nauk; BAZYLEV, V.G., kand. tekhn. nauk

Algorithm of the control of a mining complex with an averaging system; Lebedi mine. Izv. vys. ucheb. zav.; gor. zhur. 8 no.2: 20-25 '65. (MIRA 18:5)

1. Institut gornogo dela imeni A.A.Skochinskogo (for Aleynikov, Orlov). 2. Nauchno-issledovatel'skiy institut po problemam Kurskoy magnitnoy anomalii imeni L.D.Shevyakova (for Bazylev).

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.V., kand. tekhn. nauk; ALEYNIKOV, B.I., inzh.; BAZYLEV, V.G., kand. tekhn. nauk

Controlling the averaging process in ore mining with the help of electronic computers at the "Lebedin" strip mine in the Kursk Magnetic Anomaly. Gor. zhur. no.2:48-51 F '65. (MIRA 18:4)

1. Institut gornogo dela im. A.A.Skochinskogo (for Orlov, Aleynikov). 2. Nauchno-issledovatel'skiy institut Kurskoy magnitnoy anomalii im. L.D.Shevyakova (for Bazylev).

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

SUHOPLATOV, A.P., doktor tekhn. nauk; [illegible] kand. [illegible]
PYATKIN, A.M., kand. tekhn. nauk

Network planning and preparation [illegible]. Ugol' 40 no.[illegible] Ap '65.

1. Institut gornogo dela im. A.A. Skochinskogo [illegible] Orlov). 2. Institut gornoy mekhaniki i tekhniki im. M.M. Fedorova (for Pyatkin).

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

BELOV, A.A.; DOLGINOV, Ye.A.; KROPACHEV, S.M.; ORLOV, R. Yu.; SOKOLOV, B.A.

Cherkessk-Kelasuri lateral disturbance of the structure of the Greater Caucasus. Izv. AN SSSR. Ser. geol. 24 no.6:24-32 Je '60. (MIRA 14:4)

1. Moskovskiy gosudarstvennyy universitet.
(Caucasus—Geology, Structural)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R. Yu.

Cand Geol-Min Sci - (diss) "Geological structure of the Kti-Teberdinskiy Scheelite-Arsenopyrite Deposit and its place in the system of general principles of tungsten mineralization in the Greater Caucasus." Moscow, 1961. 18 pp; (Ministry of Higher and Secondary Specialist Education, Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov, Geology Faculty, Chair of Useful Mineral Resources); 200 copies; price not given; (KL, 6-61 sup, 203)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

BORODAYEV, Yu.S.; ORLOV, R.Yu.

Genetic types and epochs of the formation of tungsten and molybdenum mineralization in the western part of the Greater Caucasus. Vest.Mosk.un.Ser.4: Geol. 17 no.5:55-65 S-O '62. (MIRA 15:11)

1. Kafedra poleznykh iskopayemykh Moskovskogo universiteta.
(Caucasus—Tungsten ores) (Caucasus—Molybdenum ores)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R.Yu.

Relations between scheelite, wolframite, and sulfides.
Dokl. AN SSSR 147 no.1:207-209 N '62. (MIRA 15:11)

1. Predstavleno akademikom D.I. Shcherbakovym.
(Scheelite) (Wolframite) (Sulfides)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, R. YU.

Dissertation defended at the Institute of the Geology of Ore Deposits, Petrography, Mineralogy, and Geochemistry for the academic degree of Candidate of Geologo-Mineralogical Sciences:

"Geological Structure of the Ati-Teberdinskiy Scheelite-arsenic-pyrite Deposits Placed in the System of General Regularities of Tungsten Mineralization in the Great Caucasus."

Vestnik Akad Nauk, No. 4, 1963, pp. 119-145

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

SMIRNOV, V.I.; BORODAYEV, Yu.S.; BOCHAROVA, G.I.; GONCHAROVA, T.Ya.; DEMIDOVA, N.G.; ORLOV, R.Yu.

Characteristics of the igneous activity and metallogeny of geosyclinal and platform stages in the development of the western part of the Greater Caucasus. Zakonom.razm.polezn.iskop. 7:210-218 '64. (MIRA 17:6)

1. Moskovskiy gosudarstvennyy universitet imeni Lomonosova.

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

L 29566-66 EWP(j)/EWT(m) RM

ACC NR: AP6018777 SOURCE CODE: UR/0070/66/011/003/0463/0464

39
B

AUTHOR: Orlov, R. Yu.

ORG: Moscow State University im. M. V. Lomonosov (Moskovskiy gosudarstvennyy universitet)

TITLE: Hippuric acid as a source of the second harmonic in the optical range

SOURCE: Kristallografiya, v. 11, no. 3, 1966, 463-464

TOPIC TAGS: harmonic oscillation, uniaxial crystal, laser effect, laser radiation

ABSTRACT: An investigation was made of the possibility of using hippuric acid ($C_6H_5CONHCH_2COOH$) to generate the second harmonic in the optical range under the effect of powerful coherent laser radiation. Hippuric acid, which crystallizes in the 222 class of rhombic syngony, possesses a high degree of nonlinearity. In this class it is possible to measure the X_{14}, X_{25}, and X_{36} tensor components of quadratic polarization. However, in the present investigation only the X_{36} component was measured. Plates 0.5 to 1.5 mm thick and about 10 mm wide were cut from hippuric acid crystal parallel to (110). The z-axis (perpendicular to the plane of the optical axes) was adjusted perpendicularly to the polarization plane of the laser beam. The maximum ratio of the intensity of the second harmonic I_{HA} generated by the hippuric acid plate (110) and the intensity of the second harmonic I_{ADP} generated by the ammonium dihydrophosphate plate (110) was approximately 6.5. Thus,

Card 1/2 UDC: 548.0:535.2

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L 29566-66
ACC NR: AP6018777

X_{36}(HA) ≷ $5X_{36}$(ADP). The measurements showed that a synchronism is possible in hippuric acid crystals when the light wave of the fundamental frequency of a definite polarization propagates with the same velocity as its second harmonic at some other polarization. The α_1, α_2, and β directions of synchronism for hippuric acid biaxial crystals were 51°, 63°, and 18°, respectively. To obtain a second harmonic in the α_1 direction, the fundamental frequency beam must be polarized in the plane of the optical axes, while in the α_2 direction it must be polarized perpendicularly to this plane. Orig. art. has: 1 figure. [JA]

SUB CODE: 20/ SUBM DATE: 24Jun65/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS: 5014

Card 2/2 CC

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. A. PA5/49T68

USSR/Medicine - Garlic Jul 48
Medicine - Rice

"One Use of Garlic in China," S. A. Orlov, ¼ p

"Priroda" No 7

Orlov, who lived in Shang-hai for 15 years, states that Chinese use garlic as antiweevil measure when storing rice.

[redacted] 5/49T68

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. A.

1/2

Orlov, S. A. On the deficiency index of linear differential operators. Doklady Akad. Nauk SSSR (N.S.) 92, 483–486 (1953). (Russian)

62

Let l denote the linear quasi-differential operator defined by

$$l=p_n-D\{p_{n-1}D-D[p_{n-2}D^2-\cdots-D(p_1D^{n-1}-Dp_0D^n)]\},$$

where $D=d/dx$ and the p_k are real measurable functions on $0\leq x<\infty$ satisfying for every finite b, $0<b<\infty$, the conditions

$$\int_0^b |p_k(x)|^{-1}dx<\infty, \quad \int_0^b |p_k(x)|dx<\infty, \quad k=1, 2, \cdots, n.$$

By properly defining the domain of l it becomes a closed symmetric operator L_0 in $L_2(0, \infty)$. The deficiency index of L_0 is characterized in terms of the rank of a matrix involving the solutions of the equation $ly=\lambda y$. The proof follows from introducing a system via the "quasi-derivatives"

$$D^{[0]}=D^0 \quad (k=0, 1, \cdots, n-1), \quad D^{[n]}=p_0D^n,$$

$$D^{[k+1]}=p_kD^k-DD^{[k]} \quad (k=1, 2, \cdots, n);$$

(over)

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ORLOV, S.A.

2/2

thus $l=D^{(n)}$. A corollary is that the maximal number m of linearly independent solutions of $ly=\lambda y$ for non-real λ satisfies $n\leqq m\leqq 2n$, a result proved earlier by I. M. Glazman. If the equation $ly=\lambda y$ has a regular singular point at ∞, it is shown that m is the number of roots of a certain polynomial in a half-plane. There exist coefficients p_i for l which make ∞ a regular singular point for $ly=\lambda y$, and such that m is any desired integer satisfying $n\leqq m\leqq 2n$.

E. A. Coddington (Los Angeles, Calif.).

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A., kandidat tekhnicheskikh nauk (Moscow)

Calculations of a structural element lying on the contour of a circular notch cut in a plate. Issledovaniia po teorii sooruzhenii. Sbornik statei no.6:529-546 '54. (MLRA 7:11)
(Structures, Theory of) (Strains and stresses) (Elastic plates and shells)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A., kandidat tekhnicheskikh nauk.

Experience in using four-block sections for concrete tunnels. Transp. stroi. 5 no. 10:10-12 D '55. (MLRA 9:3)
(Tunnels)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

Orlov S A

AID P - 5173

Subject : USSR/Engineering

Card 1/1 Pub. 103 - 14/19

Authors : Orlov, S. A., and M. Z. Turevskiy

Title : Machining of distributing drums and divisional discs without help of templates.

Periodical : Stan. i instr., 6, 41-43, Je 1956

Abstract : The authors describe the machining of divisional discs and distributing drums made without use of template and with a precision of 0.01. The work was done on the "Hille-Verke" coordinate-boring machine. Four drawings, 2 GOST standards.

Institution : None

Submitted : No date

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A.

Theory of the resolvent of a one-dimensional regular boundary problem. Dokl. AN SSSR 111 no.3:538-541 N '56. (MLRA 10:2)

1. Odesskiy gosudarstvennyy pedagogicheskiy institut imeni K.D. Ushinskogo. Predstavleno akademikom A.N. Kolmogorovym.
(Functional analysis)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A.

Structure of resolvents and spectral functions of unicimensional linear self-conjugate singular differential operators of order 2n. Dokl.AN SSSR 111 no.6:1175-1177 D '56. (MLRA 10:3)

1. Odesskiy gosudarstvennyy pedagogicheskiy institut im. K.D. Ushinskogo. Predstavleno akademikom A.N. Kolmogorovym.
(Operators (Mathematics)) (Differential equations)

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A.

Silk-reeling machine unit. Biul.tekh.-ekon.inform. no.1:42-44 '59. (MIRA 12:2)
(Reels (Textile machinery))

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A., kand. tekhn. nauk (Moskva)

Pressure of ponderable elastic media on cylindrical pipes.
Issl. po teor. sooruzh. no.8:473-483 '59. (MIRA 12:12)
(Elastic plates and shells) (Elasticity)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A., kand.tekhn.nauk (Moskva)

Stresses in a thick-walled ring subjected to a certain type of load. Issl. po teor. sooruzh. no. 9:167-171 '60. (MIRA 14:1)
(Strains and stresses)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A.; POLIVANOV, S.I., red. izd-va; GARNUKHIN, Ye.K., tekhn. red.

[Methods for the static analysis of sectional reinforced concrete linings for tunnels] Metody staticheskogo rascheta sbornykh zhelezobetonnykh obdelok tonnelei. Moskva, Gos. izd-vo lit-ry po stroit., arkhit. i stroit. materialam, 1961. 134 p. (MIRA 15:2)

(Tunnel lining)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A., kand.tekhn.nauk

Standardized precast reinforced concrete lining for subway running tunnels. Transp. stroi. 12 no.6:48-51 Je '62. (MIRA 15:6)
(Tunnel lining)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.A.

One of the means to increase the profitableness of enterprises is a combination of production, Kons.i ov.prom. 18 no.1:27-28 Ja '63. (MIRA 16:2)

(Industrial organization)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. D.
USSR/Medicine - Veterinary

FD-465

Card 1/1 : Pub. 137 - 6/24

Author : Orlov, S. D.

Title : Kozel'skiy Rayon Veterinary Hospital, Kaluzhskaya Oblast.

Periodical : Veterinariya, 7, 19-21, Jul 54

Abstract : Kozel'skiy Rayon Veterinary Hospital, Kaluzhskaya Oblast, serves 38 kolkhozes. It is one of the best veterinary establishments in the oblast. Subcutaneous injection of 2cc of 0 5% solution of proserine every 3 days and rinsing the uterine cavity with a disinfectant has been used successfully in the treatment of cows that had endometritis. recovery takes place usually within 10-12 days. To increase resistance of newborn calves to paratyphoid infection cows have been given 2 subcutaneous injections of calf paratyphoid formol vaccine during the last period of pregnancy. Avitaminosis in all types of animals has been treated successfully with concentrated solution of vitamin D in oil.

Institution :

Submitted :

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.D.

USSR/Medicine - Veterinary FD-1283

Card 1/1 : Pub 137-3/20

Author : Orlov, S. D.

Title : Experience of the Shungenskiy Veterinary District

Periodical : Veterinariya, 8, 20-23 Aug 1954

Abstract : The exhibit of the Shungenskiy Veterinary District, Kostromskaya Oblast', has attracted great interest at the All-Union Agricultural Exhibition. Its pictorial display, spread over four stands, clearly shows that this is one of the best veterinary districts in the country. This district serves four large kolkhozes in which average milk yield per cow was 2,885 kg in 1951, 3,150 kg in 1952, and 3,225 kg in 1953. By maintaining strict sanitary conditions the specialists of this veterinary district have successfully eliminated incidence of the following diseases among agricultural animals: brucellosis, mange, tuberculosis, hoof-and-mouth disease, plague, erysipelas, and other diseases of animals. Illustrations.

Institution :

Submitted :

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

LIKHACHEV, N.V., akademik; ORLOV, S.D., mladshiy nauchnyy sotrudnik; SHEMANOVA, G.F., mladshiy nauchnyy sotrudnik

Preparation of a vaccine against foot-and-mouth disease from viruses grown in tissue cultures. Veterinariia 40 no.3:64-65 Mr '63. (MIRA 17:1)

1. Gosudarstvennyy nauchno-kontrol'nyy institut veterinarnykh preparatov.

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.F.

Orlov, S.F. and Svitkin, [illegible]"A power unit for special timber machines", Trudy [illegible] akad. im. Kirova, No. 43, 1948, p. 13-21.

SO: U-3042, 11 March 53, (Letopis 'nykh Statey, No. 7. 1949)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

CH

21

W. S. norton

The use of green wood in a series of gas generators. S. F. Orlov and A. M. Gol'dberg. *Lesnaya Prom.* 9, No. 12, 8-10(1949).—Cross-sectional drawings and operating data on 2 alternate types of generators are presented.

Marshall Sittig

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. F. and PAVLUSHKOV, L. V. (Engr.)

"Soviet KT-12 Tractor on a Lengthened Chassis," Lesnaya Promyshlennost', No 5, 1951.

Translation W-22833, 23 May 52

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

1. ORLOV, S. F.; KRYUCHKOV, G. YA, Eng.; BABITSKIY, G. M.

2. USSR (600)

4. Lumbering - Machinery

7. Operation of felling and skidding machines, Mekh. trud. rab., 7, no. 4, 1953.

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

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

OPLOV, Sergey Federovich

Academic degree of Doctor of Technical Sciences, based on his defense, 16 February 1955, in the Council of the Leningrad Order of Lenin Forestry Academy imeni Kirov of his dissertation entitled: "Questions of the Theory and Application of Traction Machinery in the Transport of Timber."

Academic degree and/or title: Doctor of Sciences

SO: Decisions of VAK, List no. 25, 10 Dec 55, Byulleten' MVO SSSR, Uncl. JPRS/NY 548

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.F., doktor tekhnicheskikh nauk.

Improving lumbering technique and equipment. Mekh.trud.rab. 10 no.10:33-36 O '56. (MLRA 10:1)
(Lumbering--Machinery)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. F.

3-9-15/31

AUTHORS: Nikitin, V.M., Doctor of Chemical Sciences, Professor, and Orlov, S.F., Doctor of Technical Sciences, Professor

TITLE: An Engineer Must Be Able to operate Machines (Inzhener dolzhen umet' rabotat' na mashinakh)

PERIODICAL: Vestnik Vysshey Shkoly, 1957, # 9, p 67 (USSR)

ABSTRACT: The authors describe the practical work of students of the Leningrad Academy of Technical Forestry on logging machines and mechanisms. This two-week training was done at the Lisinsk Leskhoz.

To enable the students to actually work on the logging machines in the forest a training ground was organized during the winter of 1954/55, where they operated machines and mechanisms such as tractors, portable power units, electric saws, trucks, etc. The students carried out all kinds of timber handling under supervision. At the end of the training the students were authorized by a qualification commission to operate one of the machines.

In 1956/57 the training methods were improved. Brigades of 9 students each were divided into several detachments, who had to perform technological operations for a period of 10 days. At the end of the educational and practical training, 45 students were qualified as operators of the above-mentioned machines and

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.R., doktor tekhn. nauk; GOL'DBERG, A.M., kand. tekhn. nauk; BELOZEROV, Ye.Ya., aspirant; YERSHOV, I.S., inzh.; LYCHEV, D.P., inzh.; RAVDIN, P.D.

First attempts at the skidless conveying of timber. Mekh. trud. rab. 11 no.10:6-8 O '57. (MIRA 10:11)
(Lumber--Transportation)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.F.

118-58-4-7/23

AUTHOR: Orlov, S.F., Professor, Doctor of Technical Sciences

TITLE: Some Questions on the Development of the USSR Lumbering Industry (Nekotoryye voprosy razvitiya lesozagotovitel'noy promyshlennosti SSSR)

PERIODICAL: Mekhanizatsiya Trudoyëmkikh i Tyazhëlykh Rabot, 1958, Nr 4, pp 17-23 (USSR)

ABSTRACT: This article deals with problems of mechanization in the lumbering industry. In 1957, experiments carried out by the Lisinskiy uchebno-opytnyy leskhoz (Lisiy Nos Experimental-Training Leskhoz) of the Leningradskaya ordena Lenina lesotekhnicheskaya akademiya imeni S.M. Kirova (The Leningrad Forest Engineering Academy imeni S.M. Kirov rewarded with the Order of Lenin) showed that mechanization may also be used in the selective felling of mature trees. There are 4 tables.

AVAILABLE: Library of Congress

Card 1/1 1. Lumber industry-Development-USSR

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, Sergey Fedorovich; MARBUT, Mikhail Vasil'yevich; STRELE, L.A., red.

[Methodological manual for traction analysis of motor vehicles and tractors with hydraulic torque converters] Metodicheskoe rukovodstvo po tiagovomu raschetu avtomobilei i traktorov s gidrotransformatorom; uchebnoe posobie. Leningrad, Leningr. lesotekhn. akad. 1962. 37 p. (MIRA 16:7)

(Motor vehicles—Design and construction)
(Tractors—Design and construction)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, Sergey Fedorovich, doktor tekhn.nauk; GOL'DBERG, A.M., red.; PITERMAN, Ye.L., red. izd-va; VDOVINA, V.M., tekhn. red.

[Theory and use of automotive machinery in lumbering camps] Teoriia i primenenie agregatnykh mashin na lesozagotovkakh. Moskva, Goslesbumizdat, 1963. 270 p. (MIRA 16:8)
(Lumbering--Machinery)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

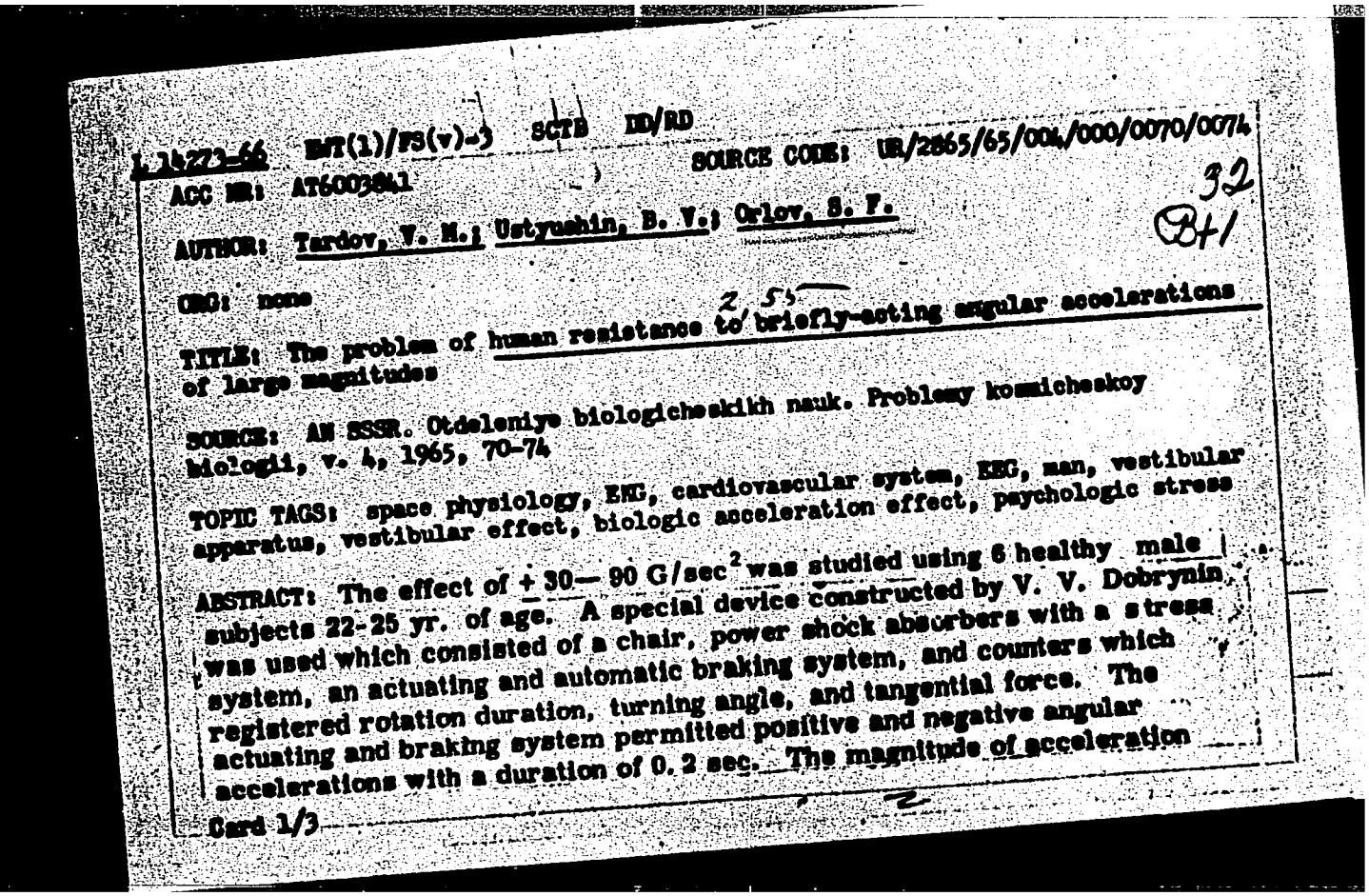
"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

TARDOV, V.M.; USTYUSHIN, B.V.; ORLOV, S.F.

Resistance of man to the action of short angular accelerations of great magnitudes. Probl. kosm. biol. 4:70-74 '65. (MIRA 18:9)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238



L 14223-66 EWT(1)/FS(v)-3 SCTB ED/RD

ACC NR: AT6003841 SOURCE CODE: UR/2865/65/004/000/0070/0074

AUTHOR: Tardov, V. M.; Ustyushin, B. V.; Orlov, S. F. 32 B+1

ORG: none

TITLE: The problem of human resistance to briefly-acting angular accelerations of large magnitudes 2 55

SOURCE: AN SSSR. Otdeleniye biologicheskikh nauk. Problemy kosmicheskoy biologii, v. 4, 1965, 70-74

TOPIC TAGS: space physiology, EKG, cardiovascular system, EKG, man, vestibular apparatus, vestibular effect, biologic acceleration effect, psychologic stress

ABSTRACT: The effect of $\pm$ 30— 90 G/sec^2 was studied using 6 healthy male subjects 22-25 yr. of age. A special device constructed by V. V. Dobrynin was used which consisted of a chair, power shock absorbers with a stress system, an actuating and automatic braking system, and counters which registered rotation duration, turning angle, and tangential force. The actuating and braking system permitted positive and negative angular accelerations with a duration of 0.2 sec. The magnitude of acceleration

Card 1/3

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

L 14273-66

ACC NR: AT6003841

in 58 tests was gradually increased from 30 G/sec^2 to 90 G/sec^2. Rotation took place around the longitudinal axis of the body.

The following physiological indices were studied: electronystagsmogram, EKG, arterial pressure, respiration rate, and EEG. Subjective illusions during rotation were characteristic of those experienced when the semi-circular canals are stimulated.

The cardiovascular system reacted sharply to short-term rotation, reflected in an increase in pulse rate after the chair had been stopped. In some cases, after exposure to ± 30—90 G/sec, the rate was 125 beats/min, quickly returning to normal and sometimes subnormal levels. Systolic and diastolic pressure was increased. EKG's showed a parallelism with the above indices: The QT interval shortened as pulse rate increased, returning to normal 10—15 min later. The systolic EKG index increased by 10—15% as pulse rates increase, but quickly returned to normal. Spike voltage was unaltered in all tests. Like cardiac activity, the respiration rate also increased immediately after exposure, quickly returning to normal levels.

Card 2/3

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

L 23875-66 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)

ACC NR: AP6009914 (A) SOURCE CODE: UR/0413/66/000/004/0112/0112

27
B

AUTHOR: Drozdovskiy, G. P.; Kolominov, V. P.; Orlov, S. F.; Nagirovskiy, N. P.; Fedoseyev, O. V.

ORG: none

TITLE: A machine for felling and hauling trees without the use of a choker. Class 45, No. 179112 [announced by Leningrad "Order of Lenin" Forestry-Engineering Academy imeni S. M. Kirov (Leningradskaya Ordena Lenina lesotekhnicheskaya akademiya); Omsk Tractor Plant (Omskiy traktornyy zavod)]

SOURCE: Izobreteniya, promyshlennyy obraztsy, tovarnyye znaki, no. 4, 1966, 112

TOPIC TAGS: forestry, transportation equipment, woodworking machinery

ABSTRACT: This Author's Certificate introduces: 1. A machine for felling and hauling trees without the use of a choker. The unit includes a self-propelled base with a frame which rotates in the vertical longitudinal plane of the machine and carries an extensible roller arm. Also mounted on the base are a receiving and loading device with collapsible packing arm, a cutting mechanism, a winch, a drive, and a device for fastening the logs to the receiving beam. This latter device contains a constantly closed loop of cable fastened at the ends to the winch drum with a mechanism for keeping the loop separated. In order to increase productivity, simplify control of the

2

UDC: 634.0.36:629.114.2

Card 1/3

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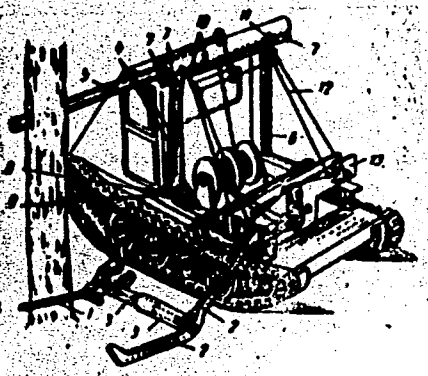
"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

L 23875-66
ACC NR: AP6009914

machine and cut logs by various methods, the cutting mechanism is fastened to the packing arm of the receiving and loading device by a telescoping bar which may be ro-



1--cutting mechanism; 2--packing arm; 3--telescoping bar; 4--lengths of cable; 5--roller arm; 6--rotating frame; 7--pulleys; 8--drive for the roller arm extension mechanism; 9--drive for the cable loop separation mechanism; 10--cable guys; 11--guide rings; 12--cable loop; 13--receiving beam.

tated around its longitudinal axis. The mechanism for extension of the roller arm is made with lengths of cable fastened to the roller arm with the other ends passed through pulleys mounted on the upper cross beam of the rotating frame. These cables are driven by a unit which is connected with the drive for the mechanism which separates the cable loop. This mechanism is made with cable guys which are also fastened at one end to the drive while the other ends are passed through guide rings mounted on the upper cross beam of the rotating frame and freely connected to the cable loop of the device for fastening the logs to the receiving beam. 2. A modification of this machine in which the operation of the mechanism for extension of the roller arm is synchroniz-

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L 23875-66
ACC NR: AP6009914

ed with that of the mechanism for separation of the cable loop by making their common drive in the form of two drums. One of these drums is rigidly fastened to the drive shaft while the other is connected to this shaft by a slip clutch.

SUB CODE: 02,13/ SUBM DATE: 29Mar65/ ORIG REF: 000/ OTH REF: 000

Card 2/2

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

L 26674-66 EWT(d)/EWP(h)/EWP(l)
ACC NR: AP6009551 SOURCE CODE: UR/0413/66/000/005/0093/0094

AUTHORS: Amel'kovich, I. I.; Artamonov, Yu. G.; Dyatlov, Ye. S.; Magirovskiy, N. P.; Novozhilov, Yu. I.; Orlov, S. F.; Pikkuvirta, P. O.; Podkovyrin, A. I.; Polyachenko, V. A.; Senchenko, L. P.; Fedosoyev, O. V.; Shubin, L. V. 32 B

ORG: none

TITLE: Machine for gathering, hauling, and transportation of felled trees. Class 45, No. 179539 [announced by Onega Tractor Factory (Onezhskiy traktornyy zavod); Leningrad Kirov Factory (Leningradskiy Kirovskiy zavod); Leningrad Forestry Technical Academy im. S. M. Kirov (Leningradskaya lesotekhnicheskaya akademiya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 5, 1966, 93-94

TOPIC TAGS: tractor, forestry, forestry product

ABSTRACT: This Author Certificate presents a machine for hauling, gathering, and transporting felled trees, consisting of a mono-axle tractor, semitrailer with steering axle connected with the tractor by a universal joint, and a hoist. To insure a continuous pick-up of felled trees and their loading on the machine, the latter is equipped with a movable boom, to the end of which is attached a pincer clamp. To improve the maneuverability of the machine, the movable boom is mounted on the tractor frame and the pick-up device on the frame of the semi-trailer. To

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prevent damage to the movable parts, the latter are protected by means of pipe fastened above the saddle hitch device. To facilitate the loading of large packets of trees, a pulley is attached to the protective pipe (see Fig. 1).

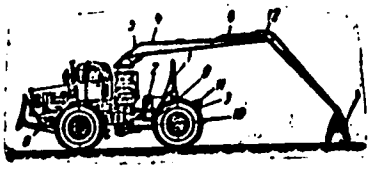

Fig. 1. 1 - pick-up assembly; 2 - hoist; 3 - saddle-hitch device; 4 - movable boom; 5 and 6 - power cylinders; 7 - pincer clamp; 8 - mono-axle tractor; 9 - semitrailer; 10 - steering axle of semitrailer; 11 - protective pipe; 12 - pulley.

Orig. art. has: 1 diagram.

SUB CODE: 13,02/ SUBM DATE: 15Jun64

Card 2/2 BLG

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

BORDZILOVSKIY, V.S.; ORLOV, S.I.

Galvano-and fango therapy of pyorrhea alveolaris. Stomatologiia no.5:62 S-O '55. (MLRA 9:2)

(GUMS--DISEASES) (ELECTROTHERAPEUTICS)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

CA ORLOV, S.I.

2

Molecular weight of pectin. S. A. Ghkman and S. I. Orlov (N. G. Chernyshev State Univ., Saratov). *Doklady Akad. Nauk S.S.S.R.* 71, 895-7 (1950).—Detn. of osmotic pressure of pectin solns. contg. 1% NaF (for elimination of bacterial growth during the long expts.) gave for the various fractions obtained by aq. EtOH extn. mol. wts. ranging from 4400 to 33,200. The results are almost 40% below those obtained using the consts. of Owens, *et al.* (*C.A.* 40, 3981[9]) for detns. of mol. wt. viscometrically. The Owens formulation held only for the lowest fractions and curves rather than straight lines resulted from plots of concn. against viscosity; the location of the "elbows" in the curves was affected by the mol. wts. analogously to the observed facts with other chain polymers. Mol. wt. is an insufficient criterion for detn. of colloidal properties of pectin, as the relative positions of polar groups in the chains greatly affect the gel formation. The viscosity equation that is most satisfactory is: $[\eta] = 1.1 \times 10^{-3} M$. " G. M. Kosolapoff

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S. I.

Dissertation: "The Influence of Certain Physicochemical Factors on the Gelatinization of Pectin." Cand Chem Sci, Inst of General and Inorganic Chemistry, Acad Sci Ukrainian SSR, 17 Jun 54. (Pravda Ukrainy, Kiev, 6 Jun 54)

SO: SUM 318, 23 Dec 1954

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

REUTOV, O.A., PTITSYNA, O.A., ORLOV, S.I.

Synthesis of solid aryl diazonium salts from double aryl diazonium salts of ferric chloride. Vest. Mosk. un. Ser. 2: khim. 15 no.2: 47-49 Mr-Ap '60. (MIRA 13:6)

1. Kafedra organicheskoy khimii Moskovskogo universiteta.
(Diazonium compounds) (Iron chloride)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.I.

Influence of defects in blanks on the quality of pipes. Metallurg 2 26-29 My '57. (MLRA 10:6)

1. Nachal'nik metallurgicheskoy laboratorii Sinarskogo trubnogo zavoda.
(Pipe, Steel) (Steel--Defects)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

AUTHOR: Orlov, S. I. Head of the Metallurgical Laboratory.

TITLE: Influence of defects in the billet on tube quality. (Vliyaniye defektov zagotovki na kachestvo trub). 130-5-12/22

PERIODICAL: "Metallurg" (Metallurgist), 1957, No.5, pp. 26 - 29, (U.S.S.R.).

ABSTRACT: In this article the quality of billets supplied by different metallurgical works for the production of tubes is compared and a special investigation carried out jointly with one of the works is reported. Billets supplied by the Kuznetskiy metallurgical combine were found to be greatly superior to those from the Novo-Tagilskiy and the Chelyabinsk works. A metallographic investigation of Novo-Tagilsk steel was carried out and the structures observed are illustrated. It was found that metal from some heats did not come up to the requirements of Specification MTY 3024-52. Experiments were carried out at the Sinarskiy works in collaboration with workers from the Novo-Tagilskiy combine to study the quality of tube-billet sheets along the length of bottom-poured ingots. Details of the rejects at various stages of tube-production from these ingots are tabulated, and macro and microstruc-

Card 1/2

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Influence of defects in the billet on tube quality. (Cont.) 130-5-12/22

tures showing flaws are illustrated. Investigation of tubes rejected through longitudinal flaws showed that the flaws rise mainly through the presence of a large quantity of non-metallic inclusions in the billet, although other metallurgical defects also contribute. A serious accident occurred at the Sinarskiy works in September 1956 through poor metal quality, resulting in a 12-hour stoppage of the plant. The Novo-Tagilskiy combine is urged to adopt stricter control in tube-steel production. There are 5 figures and 1 table.

ASSOCIATION: Sinarskiy Tube Works (Sinarskiy Trubnii Zavod).

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

133-58-4-18/40

AUTHOR: Orlov, S. I., Engineer

TITLE: Reduction of Tube Crop Ends on Rolling in a Continuous Mill (Umen'sheniye kontsevoy obrezi trub pri prokatke na nepreryvnom stane)

PERIODICAL: Stal', 1958, Nr 4, pp 335-339 (USSR)

ABSTRACT: The influence of dimensions and shift in aligning indentation shape of piercing mandrels and the wear of the mandrel on the size of crop front end of tubes was investigated. The experimental work was carried out on semis from steel 10 of 90 mm diameter and 800 mm long during rolling of tubes 57 x 3.5 mm. The results obtained are shown in Figs.1-3. It was found that with correct alignment of the tube billet the differences in wall thickness of ends of hot rolled tubes considerably decreases and thus losses of metal on crop ends also decrease. Aligning indentation made by the hot method should be similar in shape to that obtained by drilling. The eccentricity of the aligning indentation (on semis of 90 mm dia.) should not exceed 4 mm. Changes in dimensions of the aligning indentation in diameter from 25 to 31 mm and in depth from 5 to 40 mm are reflected only in the

Card 1/2

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Reduction of Tube Crop Ends on Rolling in a Continuous Mill

position of ring films of the forward end of tubes. At a depth of 5 mm and diameter of 25 mm, the ring internal films are mainly situated at a distance of 60-80 mm from the front end, with increasing diameter and depth of the aligning indentation these films are shifted towards the end of the tube. The use of a new lengthened type of piercing mandrel improves the operation of the piercing mill. The number of end-internal films of a length above 140 mm decreases approximately two times and the machine time of piercing operation and specific consumption of power for the piercing by 10-11%. The durability of the lengthened mandrels is twice longer than that of the old shape. In order to improve the quality of the internal surface of the tube, changing of profile rolls should be done once per week. A. S. Popkov, Engineer and D. P. Cherepanova, Technician, participated in the work.
There are 6 figures.

ASSOCIATION: Sinarskiy trubnyy zavod (Sinarskiy Tube Works)

1. Rolling mills--USSR 2. Tubes--Rolling

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

SHVEYKIN, V.V., doktor tekhn.nauk, prof.; ORLOV, S.I., inzh.

Distribution of plastic deformation in transverse swaging of cylindrical shapes. Izv.vys.ucheb.zav.; chern.met. no.6:99-108 Je '58. (MIRA 12:8)

1. Ural'skiy politekhnicheskiy institut. Rekomendovano kafedroy obrabotki metallov davleniyem Ural'skogo politekhnicheskogo instituta.

(Deformations (Mechanics)) (Forging)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

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ORLOV, S.I.; BERSHTEYN, L.V.

Using clay emulsions to recondition molding mixtures. Lit. proizv. no.1:48 Ja '59. (MIRA 12:1)
(Molding machinery and supplies)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.I., inzh.; SHVEYKIN, V.V., prof., doktor tekhn.nauk

Characteristics of plastic deformation in transverse upsetting, transverse and spiral rolling. Izv.vys.ucheb.zav.; chern.met. 2 no.5:55-68 My '59. (MIRA 12:9)

1. Ural'skiy politekhnicheskiy institut.
(Deformations (Mechanics)) (Rolling (Metalwork))

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

18.5200

77695
SOV/148-60-1-18/34

AUTHORS: Orlov, S. I., Shveykin, V. V.

TITLE: Deformation of Cylindrical Bodies During Repeated Transverse Upsetting

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Chernaya metallurgiya, 1960, Nr 1, pp 108-115 (USSR)

ABSTRACT: This study of the distribution of deformation during repeated upsetting was conducted on the samples which were soldered from the parts having a coordinate network. The quadratic network 3x3 mm was applied to the surfaces of lead samples with an accuracy of 0.1 mm. The repeated upsetting was performed between the smooth, flat parallel dies of a hydraulic press. After the deformation and measuring, the samples were heated up to about 100° C, unsoldered, cleaned, and measured again. The length and the angle of distortion of the deformed network were measured by microscope to an accuracy of 0.01 mm and 1°. In the study of distribution of deformation during

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the consecutive reductions, the sample was turned in the same direction for 3-6° angle before every consecutive reduction. The character of deformation in cross sections is shown in Fig. 2. Sample 61 was subject to 295 individual reductions. The deformation in longitudinal cross section is shown in Fig. 4. The distribution of plastic deformation during upsetting with a turn of 45-90° is illustrated in Fig. 5. The stressed condition of axial layers of metal is illustrated in Fig. 6. As a result of experiments conducted the author state that in the axial zone of the billet there exists a volumetric state of stress (of opposite signs) consisting of compressive stresses along the line of action of external loads and tensile stresses in two other directions, and that the tensile stresses, acting in the cross section perpendicularly to the compression forces, are the largest. During the rotation of the billet around the axis, the whole volume of the axial part of the billet passes through the constant field of stresses and is subject to alternate action of

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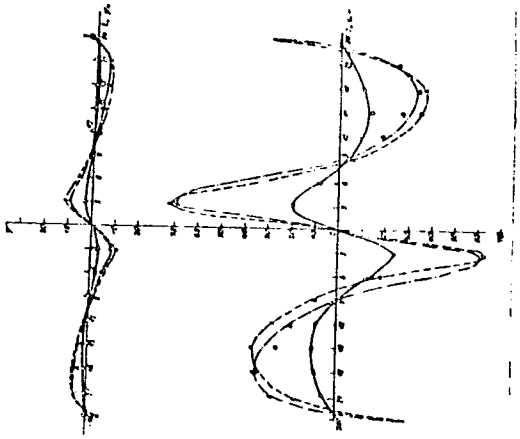

Fig. 2. Distribution of the angle of distortion of sections of diametrical lines on disks 1, 5, and 9 of samples 61 and 62, reduced in diameter by 0.5% and [illegible]%. o__.__.__o = face of the sample (disk 1); △_____△ = 38 mm from face (disk 5); x_____x = 76 mm from face (disk 9).

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R00123

Deformation of Cylindrical Bodies During Repeated Transverse Upsetting

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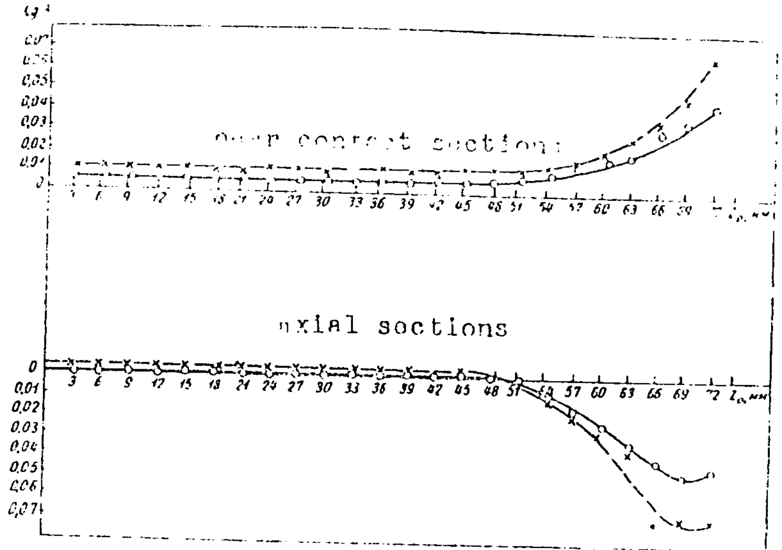

Fig. 4. Distribution of longitudinal deformation samples 10 and 10 reduced in diameter by

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Deformation of Cylindrical Bodies During Repeated Transverse Upsetting

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SOV/148-60-1-1 /31

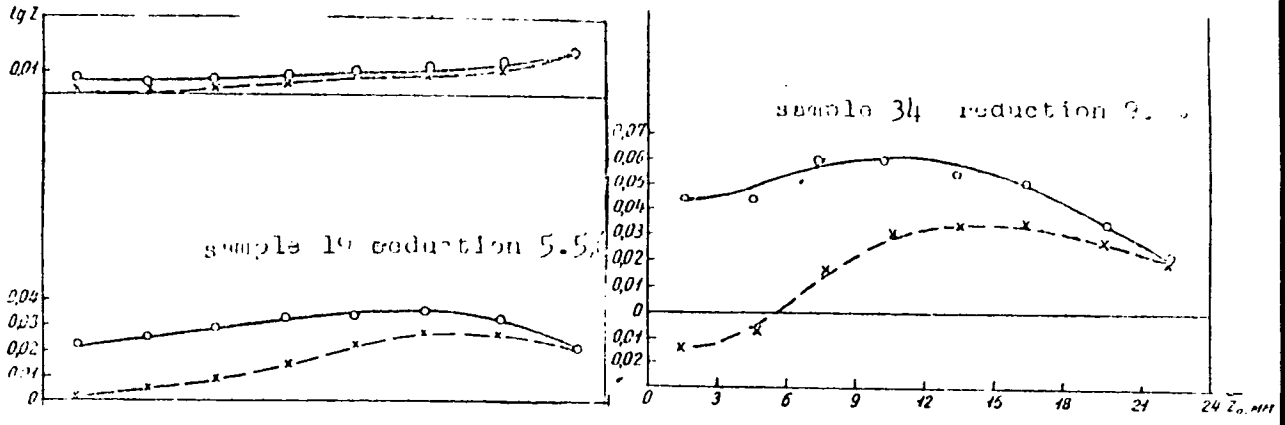

Fig. 5. Distribution of deformation of cells of longitudinal coordinate network in the direction z—z during the two mutually perpendicular reductions to 2.1; 5.5 and 9.8%. o_____o = first reduction; x_____x = second reduction.

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Deformation of Cylindrical Bodies During Repeated Transverse Upsetting

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SOV/148-60-1-16/34

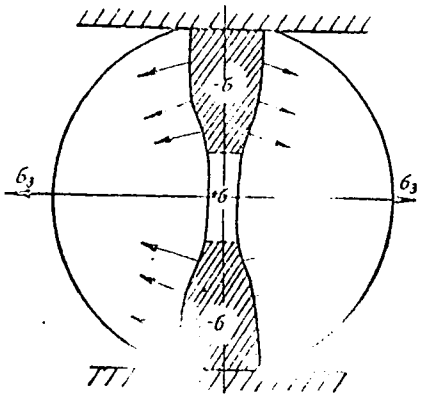

Fig. 6. A diagram of "wedging" of axial fibers by barrel-like widening.

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compressive and tensile stresses. Consequently, when a definite value of the transverse deformation and stresses (for a given material) is reached, the continuity in the axial zone is disrupted. The previous work of Unksov, Frokht, and V. S. Smirnof is mentioned. There are 7 figures; and 4 Soviet references.

ASSOCIATION: Ural Polytechnic Institute (Ural'skiy politekhnicheskiy institut)

SUBMITTED: October 25, 1958

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

S/133/61/000/003/010/014
A054/A033

AUTHORS: Shveykin, V. V., Professor, Doctor of Technical Sciences; Orlov, S. I., Engineer; Karpenko, L. N., Engineer

TITLE: Improving the roll-pass designs and mandrels for piercing large ingots

PERIODICAL: Stal', no. 3, 1961, 256 - 259

TEXT: To investigate the principal factors affecting the operation of the piercing mill tests were carried out with the cooperation of P. N. Ivshin, Engineer, to improve the roll-pass designs and mandrels with the purpose: 1) to obtain the smallest possible reduction before the mandrel front piece; 2) to increase the length of deformation focus in the piercing cone; 3) to use piercing mandrels with a shaping nose having an average angle of inclination of 10 - 12°; 4) to apply small angles of inclination of the shaping cone of lateral rolling. As it is not easy to increase roll barrel, the new roll-pass design of the piercing cone has two stages. In the first stage the shaping piercing cane has a great angle of inclina-

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Improving the roll-pass designs .....

tion (4^{o}). This is necessary to equalize the diameter of the multi-edged billet crosswise and lengthwise. In the second stage the angle of inclination of the effective area of the piercing cone is $2^{o}30'$ as compared to $3^{o}15'$ in the conventional roll-pass design. The maximum roll diameter is 64 mm nearer to the piercing cone to make it possible to use elongated mandrels. The angles of inclination of the shaping cone are calculated in such a way that the diametrical reduction of the billet before the mandrel nose is at least 5 %, provided this end coincides with the area of contraction. The angle of the shaping cone in transversal rolling was taken as 2^{o}; in this way the diameter of the pierced tube blank is approximately equal to the average diameter of the billet. The profile of the mandrel was designed for three positions: 1) when its nose coincides with the contraction area; 2) when it is 30 mm and 3) when it is 60 mm ahead of the contraction area. When the nose of the mandrel coincides with the contraction area, the coefficient of relative reduction of the wall can be calculated by means of the following formula:

$$\frac{S_o}{S_{t.b.}} = \eta_{red} \qquad (4)$$

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Improving the roll-pass designs ....

where S_o = initial wall-thickness in the plane of the front piece of the mandrel, $S_{t.b.}$ = wall-thickness of the finished tube blank, η_{red} = coefficient of relative reduction of the wall. [Abstractor's note: subscripts t.b., red. (tube blank, reduction) are translations of the original r. (gil'za) and об (obzhatiye)]. The diameter of the tube blank in each section can be calculated from

$$D_i = D_o + 2x \frac{tg\alpha}{\cos\beta} \quad (8)$$

where x = distance from the origin of the coordinate, α = angle of taper of the rolls in the cone of piercing or transverse rolling, β = angle of inclination of the rolls towards the direction of rolling. The diameter of the mandrel in each section can be drived from

$$d_i = D_i - 2s_i \quad (9)$$

where s = wall-thickness. The new УПИ-59 (UPI-59) roll-pass design has been tested mainly on 15" diameter billets, pierced with three kinds of

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A054/A033

Improving the roll-pass designs ....

mandrels a) short (l = 538 mm; average angle of inclination of the shaping nose of the mandrel: 22°); b) mediumsized (l = 568 mm and 20°) and c) long mandrels (l = 598 mm and 18°). During the tests the following values were determined: billet dimension, its temperature when discharged from the furnace, heating time, duration of transport to the stand and of piercing, the length of the tube blank, piercing temperature, the rate at which the tube blanks are discharged from the stand, the metal pressure on the working rolls and the mandrel, voltage in the winding of motor-rotor. Table 1 shows that optimum results were obtained with the medium-length mandrel, (568 mm: lower specific power consumption, (12 %), increase in the piercing speed, i.e., in the output of the piercing mill) by 10 - 12 % and increases in the output of faultless (1st class) tubes: 93 - 95 % instead of 87 - 90% obtained with the old-roll-pass design. There are 4 figures, 1 table and 1 Soviet reference.

ASSOCIATION: Ural'skiy politekhnicheskiy institut (The Ural Polytechnical Institute) and Chelyabinskiy trubnyy zavod (Chelyabinsk Tube Plant)

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A054/A033

Improving the roll-pass designs ....

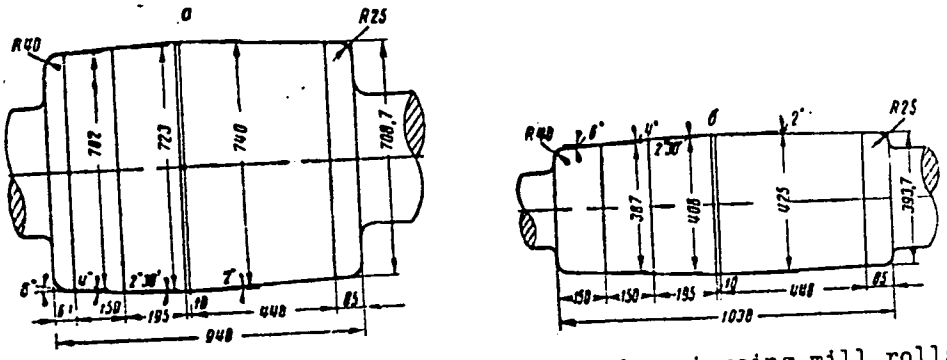

Figure 1: New (UPI-59) roll-pass design for piercing mill rolls, (1) working rolls, (2) guiding rolls

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A054/A033

Improving the roll-pass designs ....

Table 1:

① Comparison of the operational parameters of piercing mill mandrels according to the UPI-59 and UPI-54 roll-pass designs; ② Roll-pass design; ③ Length of mandrel, mm; ④ Steel grade; ⑤ Velocity of piercing mm/sec; ⑥ Power consumption kwh/t, ⑦ Piercing 15"-diameter billets; ⑧ Piercing 17"-diameter billets; ⑨ + In brackets: acceleration in the new roll-pass design as compared with the old, in %; ⑩ ++ In brackets: decrease in power consumption, according to the new roll-pass design, in %; ⓐ UPI-54; ⓑ UPI-59; ⓒ UPI-54; ⓓ UPI-59

① Сопоставление показателей работы инструмента прошивного стана по калибровкам УПИ-59 и УПИ-54

② Калибровка	③ Длина оправки мм	④ Марка стали	⑤ Скорость прошивки*, мм/сек	⑥ Расход энергии** квт-ч/т
⑦ Прошивка слитка диам. 15 дюймов				
ⓐ УПИ-54	—	20	30,9	15,05
		Д	29,1	16,15
ⓑ УПИ-59	538	20	35,6 (+15,2)	14,4 (—4,55)
	568	20	36,6 (+18,4)	13,2 (—12,2)
	598	20	36,6 (+18,4)	13,9 (—11,9)
	538	Д	34,9 (+19,9)	14,4 (—11,1)
	568	Д	—	14,15 (—12,4)
ⓒ ⑧ Прошивка слитка диам. 17 дюймов				
УПИ-54	—	20	28,7	13,4
		Д	24,3	15,5
ⓓ УПИ-59	538	20	30,0 (+4,53)	14,64 (—8,7)
	538	Д	30,7 (+26,3)	14,4 (—7,5)

⑨ * В скобках—ускорение при новой калибровке по сравнению со старой, %.

⑩ ** В скобках—снижение расхода энергии при переходе на новую калибровку, %

Table 1

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

S/133/61/000/004/010/015
A054/A127

AUTHOR: Orlov, S. I.

TITLE: At the Ural Scientific Research Institute of Ferrous Metals

PERIODICAL: Stal', no. 4, 1961, 366

TEXT: The author outlines three novel items leading to improved technical and economical efficiency factors of continuous roller piercing machines. Kinematics and dynamics of the screw-rolling process have been investigated. Calculation of the roller design was made for the first time by taking into account the flow of metal which was determined by coordinate nets applied in the deeper layers of the metal. It was found expedient to reduce the angles of the input and output roller cones to improve the quality of the pierced liners and to cut piercing time. The feasibility of using rotating mandrels on the continuous roller piercing machines to increase output and to improve the quality of the internal surface of pierced tubes has also been proved. A new design of the traveling rest of the piercing instrument has been developed, and a new chromium-magnesium steel grade for piercing mandrels has been selected. Compared to previously used high-alloy

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At the Ural Scientific Research Institute of...

manganese steel the new alloy had greater durability (2 - 3 times higher). The output rate of intermediate stainless steel procts rose by 25 - 30%, and the quality of tubes could be improved.

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KOLMOGOROV, V.L.; ORLOV, S.I.; SELISHCHEV, K.P.; LEKARENKO, Ye.M. [deceased]; POKROVSKAYA, G.N.; TIKHONOV, D.Ya.; BOGOMOLOV, I.F.

Drawing wire of nonferrous metals and alloys in conditions of fluid friction. TSvet. met. 36 no.12:65-67 D '63. (MIRA 17:2)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

SHVEYKIN, V.V.; ORLOV, S.I.; KAUFMAN, M.M.; STOLETNIY, M.F.; NOSOV, E.O.
STERN, V.A.; ORLOV, V.A.

Guillotine shears for the hot cutting of round ingots. Metallurg 9 no.1:35-36 Ja '64 (MIRA 18:1)

1. Ural'skiy politekhnicheskiy institut, Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov i Petroural'skiy novotrubnyy zavod.

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ORLOV, S.I.; KOLMOGOROV, V.L.; ANTIPIN, S.V.; ZAVAROV, S.I.; SOLOV'YEV, B.P.; VOROB'YEV, G.M.; KIRCHUNOV, A.I.

Introduction of sectional drawplates for the manufacture of low-carbon wire steel. Metallurg 10 no.10:28-29 O '65.
(MIRA 18:10)

1. Ural'skiy nauchno-issledovatel'skiy institut chernykh metallov i Revdinskiy metizno-metallurgicheskiy zavod.

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.I.

SUBJECT USSR / PHYSICS CARD 1 / 2 PA - 1672
AUTHOR ORLOV, S.I.
TITLE The Theory of Inhomogeneous Transfer Lines.
PERIODICAL Zurn. techn. fis, 26, fasc. 10, 2361-2372 (1956)
Issued: 11 / 1956

This work determines an expression for the reflection coefficient at the entrance of any inhomogeneous line which is connected to any complex resistance. Furthermore, the theorem of the modification of the wave resistance (with frequency) in the case of assumed reflection coefficients at the entrance and exit of the line is determined for the case of a line with slight inhomogeneities and without losses. The entire analysis takes place on the basis of the classical theory of homogeneous transfer lines.

The reflection coefficient at the entrance of any inhomogeneous line: An inhomogeneous line of the length l is investigated, the wave resistance $\bar{Z}(x)$ and propagation coefficient $\gamma(x)$ of which change continuously along the line according to certain rules. $\bar{Z}(x)$ and $\gamma(x)$ are connected with the distribution parameters of the line by the usual relations. The reflection coefficient $\bar{\Gamma}_{in} = \Gamma_{in} e^{j\varphi_{in}}$ at the entrance of the assumed inhomogeneous line is to be determined. For the solution of this problem the here investigated line is replaced by an inhomogeneous line the parameters of which change in jerks along the line. Next, the already known expression for $\bar{\Gamma}_{in}$ is derived by means of a recurrence formula (which expresses the relations among the values of $\bar{\Gamma}_{in}$ at

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Zurn.techn.fis,26,fasc.10, 2361-2372 (1956) CARD 2 / 2 PA - 1672

the limiting points of the individual sections of the line). The recurrence formula and the expression for Γ_k found with its help are explicitly given. The function of the inner reflections is univocally connected with the wave resistance of the line and determines the modification of this resistance along this line. The expression found for Γ_{in} is specialized also for lines without losses.

The synthesis of inhomogeneous lines: With the help of the expressions given for Γ_{in} it is possible immediately to solve the theorem of the modification of the entrance resistance of an inhomogeneous line with known geometric properties and with known load resistance. The solution of the inverse problem is of great practical interest, i.e. the determination of the parameters of the inhomogeneous line from the reflection coefficient Γ_b of the load assumed within the investigated frequency domain and from the reflection coefficient Γ_{in}. Thus, the parameters of a transformer should be determined in form of an inhomogeneous line for the case of agreement between any two complex resistances. The following special cases of this problem were investigated her: 1.) The inhomogeneous line is a filter. 2.) the inhomogeneous line is a compensating device. 3.) The inhomogeneous line is a nonreflecting transition for the linking together of two tuned lines with different wave resistances.

INSTITUTION:

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

AUTHOR: Orlov, S. I. SOV/108-13-10-3/13

TITLE: On the Estimation of Errors in the Approximation Theory of Heterogeneous Lines(Ob otsenke pogreshnosti priblizhennoy teorii neodnorodnykh liniy)

PERIODICAL: Radiotekhnika, 1958, Vol 13, Nr 10, pp 9 - 13 (USSR)

ABSTRACT: In this paper an attempt is made to determine the correlation between the maximum error in the computation of the reflection factor at the input of an arbitrary heterogeneous line, which is dissipationless, and the geometrical structure of this line, if the analysis of the line is carried out by integral equations. Besides, the condition of similarity of heterogeneous lines is deduced. The problem is solved under the condition that the electromagnetic field is disposed in a plane in every cross section of the wave guide. The maximum absolute error of the n-th approximation of the sum of the series expansion (11) is expressed by formula (13), and the same error of the series expansion (12) is expressed by (14). The maximum relative errors are as usually determined from formula (15). There are 12 references, 9 of which

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On the Estimation of Errors in the Approximation Theory SOV/[illegible]
of Heterogeneous Lines

are Soviet.

SUBMITTED: March 27, 1957 (initially) and December 4, 1957 (after revision)

Card 2/2

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

ORLOV, S.I.

Using calculating equipment for schedule planning and accounting.
[Izd.] LOMITOMASH 44:93-104 '58. (MIRA 11:9)
(Calculating machines) (Industrial management)

APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R00123

S/108/61/000/007/004/007
D204/D305

9,1400

AUTHOR: Orlov, S.I., Member of the Society (see Association)

TITLE: The synthesis of smooth transition elements

PERIODICAL: Radiotekhnika, no. 7, 1961, 23-32

TEXT: In the present article the author gives a method of synthesis of transition elements in the form of a section of smooth inhomogeneous lossless line as determined from the reflection coefficient at the transition input. The design is based on the direct solution of the Fedholm integral equation of the first order under the assumption that at every cross-section of the transition only the fundamental wave is propagated. The transition element (Fig. 1) is in the form of a smooth inhomogeneous line. The transition is loaded with a matched line of impedance Z(0), the impedance at the input being Z(1). The frequency characteristic of the reflection coefficient at the input is given. The length L of the transition element is also given. To be found is the law of change of the characteristic impedance of the waveguide along the transition. It is known

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"APPROVED FOR RELEASE: Wednesday, June 21, 2000 CIA-RDP86-00513R001238

The synthesis of smooth transition...

from an earlier work of the author (Ref. 10: ZhTF, vol. XXVI, No. 10, (1956) that the reflection coefficient at the input of a smooth inhomogeneous transition satisfies

$$\Gamma_{in}\, e^{i(\varphi_{in} + 2\beta l)} = \int_0^l \rho(x) \cdot e^{i2\beta x}\, dx \quad (1)$$

where Γ_{in} - the modulus of reflection coefficient, φ_{in} - its phase, l - the length of transition. $\beta = \frac{2\pi}{\lambda}$ - wave constant, $\rho(x) = \frac{1}{2}\frac{d}{dx}\ln Z(x)$ - the function of interval reflections. $Z(x)$ - the characteristic impedance at cross section x. The problem of synthesis is reduced therefore to the finding of the function (x). i.e. to solve the Fredholm equation of the first order. The coefficients a_n which determine the geometrical structure of the transition can be found if function f(A) is known using the formula (Ref. 12: F.M. Mors and G. Feshbakh, Metody teoreticheskoy fiziki, Vol. I, IL. Moscow 1958)

$$a_n = 2\sum_{S=1}^{n} \frac{2^S \cdot n}{S!} \cdot \frac{\left(\frac{n+S}{2}\right)!}{\left(\frac{n+S}{2} - S\right)!} \cdot f^{(S)}_{(0)}, \quad (7)$$

$$a_0 = f(0)$$

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The synthesis of smooth transition...

where $f\binom{S}{0}$ - the value of the s-th derivative of f(A) with respect to its argument at the beginning of the transition. Eq. (1) is valid only for the fundamental mode of propagation. Higher modes should not be able to propagate in the transition which imposes definite limitations as to the rate of change of the characteristic impedance along the transition length. No theoretical criterium, however, of the maximum rate of change of this impedance has been found as yet. The formula evaluating the characteristic impedance of the transition is found, starting with

$$Z(x) = Z(0)e^{2\int_0^x \rho(x)dx} \qquad (17)$$

(Ref. 10: S. I. Orlov, ZhTF. vol. XXVI, No. 10, 1956) where Z(0) is the characteristic impedance of the transition at the origin of coordinates. Formula

$$Z(x) = Z(0)\,e^{-\frac{1}{\pi}\ln\frac{Z(l)}{Z(0)}\left[\arccos\left(-1+\frac{2}{l}x\right)+\sum_{n=1}^{\infty}\frac{a_n \sin n \arccos\left(-1+\frac{2}{l}x\right)}{n}\right]} \qquad (20)$$

is finally obtained which is the most suitable for determining the

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characteristic impedance of the transition along its length. The theory as given above was applied for designing several types of transitions. The results of experimental designs of two types are given: a) a maximally smooth transition, having minimum reflection coefficient at its mid length; b) a transition with the oscillating characteristic of the reflection coefficient. The results of the experiment showed that the construction of a transition is easy if the frequency characteristic of the reflection coefficient at the input is given. A transition with the oscillating frequency characteristic has a pass band. The designed transitions are characterized by the ratio $\frac{l}{\lambda_{max}} = 0.335$, which makes them 1.5 times shorter than any other transition known in literature. This ratio should be considered near its maximum, since the function $J_4(A)$ which predominates in the compensation of function $J_0(A)$ for small values of A, vanishes quickly for $A < 2.1$. There are 4 figures and 12 references: 5 Soviet-bloc and 7 non-Soviet-bloc. The references to the English-language publications read as follows: E.F. Bolinder, Transactions of the Royal Institute of Technology, Stockholm, No.48,

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1951; H.Y. Scott, PIRE, No. 11, vol. 41, 1953; R.F.H. Yang, PIRE, No. 8, vol. 43, 1955; Y. Willis and H.K. Sinha, PIRE, p. B, No.3, vol. 103, 1956.

ASSOCIATION: Obshchestvo radiotekhniki i elektrosvyazi im. A.S. Popova (Radio Engineering and Electrical Communications Society im. A.S. Popov) [Abstracter's note: Name of Association taken from the first page of journal]

SUBMITTED: August 19, 1960

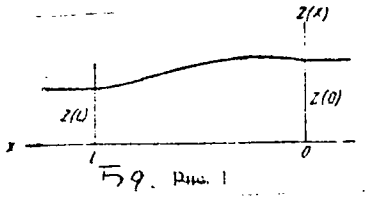

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Fig.1

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AUTHOR: Orlov, S. I., Member of the Society of Radio Engineering and Electric Communication

TITLE: Matching of complex resistance in SHF-band by using inhomogeneous lines

PERIODICAL: Radiotekhnika, v. 16, no. 2, 1961, 21-29

TEXT: Matching of a complex resistance with any arbitrary resistance over a given frequency range requires a large number of degrees of freedom of the matching device. An inhomogeneous line has an unlimited number of degrees of freedom and, therefore, can be applied for matching over a wide frequency range. This paper describes a method to calculate a matching transformer, consisting of a piece of a smooth inhomogeneous line without losses. The problem is solved by assuming that a TEM wave is propagating in each section of the inhomogeneous line. The integral equation for the matching transformer has been derived as follows: The complex reflection factor $\overline{\Gamma}_H$ satisfies Riccati's equation

$$\frac{d\overline{\Gamma}}{dx} + i2\beta\overline{\Gamma} - q(x)\,(1 - \overline{\Gamma}^2) = 0 \qquad (1),$$

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