"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

Pisarenko, G. S.

Pisarenko, G. S. Transversal vibrations of a turbine blade of variable cross-section in the absence of rim-constraints. Akad. Nauk Ukrain. RSR. Prikl. Meh. 1 (1955), 67–82. (Ukrainian Russian summary)

TFW 3

The present work is a continuation and generalization of a previous contribution [Inžen. Sb. 5 (1948), no. 1, 108–132; MR 13, 800]. By means of variational principles the author obtains a non-linear integro-partial differential equation of the fourth order in the variables x and t. The boundary-conditions are

$$y(0, t)=y'(0, t)=y''(l, t)=y'''(l, t)=0;$$

l denotes the length of the blade in question. The author obtains a second-order approximation for the determination of the dissipation energy; polynomial approximations are also introduced. Finally the author illustrates his theory by solving a specific problem. Resonance curves as well as the eigen-functions are obtained. The author's analysis seems reasonable in the case of weak non-linearity. *K. Bhagwandin* (Oslo).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

124-57-1-992

Translation from: Referativnyy zhurnal, Mekhanika, 1957, Nr 1, p 138 (USSR)

AUTHOR: Pisarenko, G S

TITLE: Free Vibrations of a Load on a Beam With Consideration of Hysteresis Losses (Svobodnyye kolebaniya gruza na balke s uchetom gisterezisnykh poter')

PERIODICAL: Izv Kiyevsk. politekhn in ta 1955 Vol 18 pp 3 [illegible]

ABSTRACT: The free damped vibrations of a concentrated load on the end of a weightless cantilever beam are investigated. The nonelastic reaction forces are assumed to be independent of the deformation velocity and are described by relationships first proposed by N N. Davidenkov (Zh tekhn. fiziki 1938, Vol 8, Nr 6). Use is made of the assumption that these forces do not affect the form of the deflection of a beam during vibration, which permits one to find an equivalent concentrated force for the nonelastic reaction reduced to the end of the cantilever span; the problem is thereby reduced to an investigation of the vibrations of the system with a single degree of freedom. The basic equation of the damped vibrations (7) is nonlinear and is solved by means of the method of Krylov-Bogolyubov [Vvedeniye v nelineynuyu mekhaniku

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

124-57-1-442

Free Vibrations of a Load on a Beam With Consideration of Hysteresis

(Introduction Into Nonlinear Mechanics) Kiyev 1957] The final formula for the vibrational deflection curve (43) coincides down to its symbols with a formula obtained by the reviewer (ref RzhMekh 1954, abstract 3746) Good agreement with experiment is established

.. Beams--Vibration--Mathematical analysis

Ya G. Panovko

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S. KHIL'CHEVSKIY, V.V.

"Geometric Parameters of the Hysteresis Loop as Characteristics of the Damping Properties of Material", from the monograph Questions on Power Metallurgy and the Strength of Materials, No III, Institute of Metallo-ceramics and Special Alloys, Academy of Sciences Ukrinian SSR, Kiev, 1956, 145 pages

Sum. 1287

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

SOV/124-57-4-4668

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 4, p 115 (USSR)

AUTHORS: Pisarenko, G. S., Khil'chevskiy, V. V.

TITLE: Geometric Parameters of the Hysteresis Loop as Characteristics of the Damping Properties of Materials (Geometricheskiye parametry petli gisterezisa kak kharakteristiki dempfiruyushchikh svoystv materiala)

PERIODICAL: V sb.: Vopr. poroshkovoy metallurgii i prochnosti materialov. Nr 3. Kiyev, AN UkrSSR, 1956, pp 108-116

ABSTRACT: For the purpose of describing the energy dissipation in a material subjected to vibration, the authors utilize N. N. Davidenkov's relationship (Zh. tekhn. fiziki, 1938, Nr 6, p 483) for the stress σ produced in a symmetrical cycle and the elongation ϵ

$$\sigma = E \{ \epsilon \mp \frac{\eta}{n} [(\epsilon_0 \pm \epsilon)^n - 2^{n-1} \epsilon_0^n] \}$$

where η and n are the parameters of the hysteresis loop obtained from experiments dealing with the damping of purely flexural

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SOV/124-57-4-4668

Geometric Parameters of the Hysteresis Loop (cont.)

vibrations in a rod with a rectangular cross section. It is assumed that the values of η and n thus obtained are characteristic constants of the material and may be employed in the computation of the values of the logarithmic damping decrement of cantilevered rods of different cross section. Formulas permitting the determination of the mean damping decrement were obtained for specimens of rectangular and segment-shaped cross sections as well as for specimens with a cross section formed by two intersecting circular arcs. The discrepancy between the experimental and calculated data did not exceed a value of 5% in any instance. Formulas and graphs showing the mean damping decrement as a function of stress are presented for the case of turbine blades (experimental data for which could not be obtained readily) of constant and variable cross section.

D. M. Vasil'yev

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

SOV 137-57-[illegible]

Translation from Referativnyy zhurnal, Metallurgiya, 1957, Nr [illegible] p 2[illegible] USSR

AUTHOR Pisarenko, G S.

TITLE The Influence of Grain Size Upon Dissipation of Energy in a Material Under Vibration (O vliyanii velichiny zerna na rasseyanive energii v materiale pri kolebaniiu

PERIODICAL Izv. Kiyevsk. politekhn in-ta, 1956, Vol 17, pp 316-320

ABSTRACT An experimental investigation is made of the influence of grain size (G) in the 40 to 70 micron range upon dissipation of energy in materials under vibration. The test was run in cantilever sections measuring 5x20x210 mm, the material being Armco Fe. A blow is delivered to the end of the specimen and an oscilloscope, using a mirror reflected light pencil, records the curve of vibration damping. It is found that coarse-grained material has higher damping properties than does fine-grained. This is explained by the fact that dissipation of energy upon vibration is fundamentally due not to the relative motion of the G but to microplastic deformations at the boundaries these being the smaller, the smaller the G. When the G is larger, greater plastic deformations may arise in individual

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SOV [illegible]

The Influence of Grain Size Upon Dissipation of Energy (cont.)

and the volume of the plastically-deformed metal proves to be greater than with fine G. This G-size effect manifests itself more strongly in nonhomogeneous metals than in homogeneous.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

124-1957-2-1492

Translation from Referativnyy zhurnal. Mekhanika, 1957, Nr 2, p 7 USSR

AUTHOR Pisarenko, G.S.

TITLE On the Damping of a Vibration Under the Action of Forces Non-linearly Related to the Amplitude (Zatukhayushchiye kolebaniya pod deystviyem sil nelineyno zavisyashchikhsya ot amplitudy)

PERIODICAL Izv Kiyevsk politekhn in-ta 1956, Nr 17 pp 321-33.

ABSTRACT The paper investigates the free damped vibrations of a system with one degree of freedom described by the equation

$$\frac{d^2x}{dt^2} + p^2x + \varepsilon\phi(x) = 0 \qquad (1)$$

where p is a constant, ε is a small parameter, $\phi(x)$ is a nonlinear function which determines a resistance force of the hysteresis type and which also satisfies the condition $|\varepsilon\phi(x)| \ll |p^2x|$. It was taken into consideration that the law of the resistance could be different in the rising motion (ϕ_+) as against the descending motion (ϕ_-). The solution of Equation (1)

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124-1957-2-1492

On the Damping of a Vibration (cont.)

can be obtained in the following form $x = a\cos(pt+\varphi)$, where a and φ are the unknown functions, their determination by a well-known method is narrowed down to the solution of the equations

$$\frac{da}{dt} = \frac{\varepsilon}{p}\phi\left[a\cos(pt+\varphi)\right]\sin(pt+\varphi) \quad \text{and} \quad \frac{d\varphi}{dt} = \frac{\varepsilon}{ap}\phi\left[a\cos(pt+\varphi)\right]\cos(pt+\varphi)$$

Regarding ϕ N. N. Davidenkov's hypothesis is used relative to the energy dissipation during a vibration (Zh. tekhn. fiziki, 1938, Vol. 8)

$$\varepsilon\phi_+(a\cos\varphi) = -\frac{E\eta}{\alpha k}a^k\left[(1+\cos\varphi)^k - 2^{k-1}\right] \quad \text{and}$$

$$\varepsilon\phi_-(a\cos\varphi) = \frac{\varepsilon\eta}{\alpha k}a^k\left[(1-\cos\varphi)^k - 2^{k-1}\right]$$

where E, η, α, and k are constants. The solution of Equation (1) in the first and second approximations is found by the Author following the method of N. M. Krylov and N. N. Bogolyubov.

I. M. Volk

Card 2/2

1. Vibration - Control 2. Mathematics

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S. (Kiiv)

Energy dissipation in vibrating solids; Prykl.mekh. 2 no.3:237-256 '56. (Vibration) (Elastic solids) (MLRA 9:10)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S. (Kiiv)

Calculation of vibrations of elastic bodies accounting for energy scattering in materials; survey. Prikl.mekh.2 no.4:357-372 '56. (MLRA 10:3)

1. Institut metalokeramiki ta spetsial'nikh splaviv AN URSR.
(Vibration) (Elastic solids)

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24(1) PHASE I BOOK EXPLOITATION SOV/1774

Vaynberg, David Veniaminovich, and Georgiy Stepanovich Pisarenko

Mekhanicheskiye kolebaniya i ikh rol' v tekhnike (Mechanical Vibrations and Their Role in Engineering) Moscow, Fizmatgiz, 1958. 231 p. 12,000 copies printed.

Ed.: S.A. Meyngard; Tech. Ed.: Ye. A. Yermakova.

PURPOSE: This book is intended for the general reader.

COVERAGE: The book describes various types of mechanical vibrations and their damaging effects and useful applications in various branches of engineering. Topics discussed are free vibrations of a pendulum and its role in the history of the development of engineering, free vibrations of elastically attached loads and of elastic bodies, forced vibrations and resonance, special types of vibrations, damaging effects of vibrations, application of vibrations in engineering, and instruments for measuring

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mechanical vibrations. The authors thank Academicians of the Academy of Sciences, UkrSSR, N.N. Davidenkov and G.N. Savin, Professor Ya. G. Panovko and V.V. Khil'chevskiy, Candidate of Technical Sciences. There are 39 Soviet references.

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18(0,7) PHASE I BOOK EXPLOITATION SOV 2.7

Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov

Voprosy poroshkovoy metallurgii i prochnosti materialov. Vyp. 4 (Problems in Powder Metallurgy and Strength of Materials. Nr 4) Kiyev, Izd-vo AN USSR, 1958. 172p. 2,000 copies printed.

Ed. of Publishing House: Ya. A. Samokhvalov; Tech. Ed.: V.Ye. Sklyarova; Editorial Board: I.N. Frantsevich (Resp. Ed.), I.N. Fedorchenko, G.S. Pisarenko, G.V.Samsonov, and V.V. Grigor'yeva.

PURPOSE: This collection of articles is intended for a wide circle of scientists and engineers in the research and production of powder metallurgy. It may also be useful to advanced students of metallurgical institutes.

COVERAGE: This collection of articles describes the results of investigations made at the Institut metallokeramiki i spetsial'nykh splavov, AN USSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences, Ukrainian SSR). The physical and chemical properties of materials used in powder metallurgy are discussed. Materials described as new, production processes, and methods and results of mechanical testing are described. No personalities are mentioned. References follow each article.

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The author presents the results of an experimental determination of the proportional limit, yield point, ultimate strength, relative elongation at static fracture, shear strength, and resistance to impact of motion picture film.

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PISARENKO, G. S.

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PISARENKO, G.S., otv.red.; FRANTSEVICH, I.N., red.; SAMSONOV, G.V., red.; GRIGOR'YEVA, V.V., red.; YAKOVLEV, A.P., red.; KISINA, I.V., red.izd-va; MATVEYCHUK, A.A., tekhn.red.

[Transactions of the Scientific and Technical Conference on Damping of Oscillations] Trudy Nauchno-tekhnicheskogo soveshchaniia po dempfirovaniiu kolebanii. Kiev, Izd-vo Akad.nauk USSR, 178 p. (MIRA 13:12)

1. Nauchno-tekhnicheskoye soveshchaniye po dempfirovaniyu kolebaniy. 1958.
(Oscillations--Congresses) (Damping (Mechanics)--Congresses)

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A[illegible]/A[illegible]1

Application of the Small-Parameter Method to Studying Elastic-System Oscillations With Hysteresis

experimental curve, which was obtained by the Institut metallokeramiki [illegible] nykh splavov AN UkrSSR (Institute for Powder Metallurgy and Special Alloys of the AS UkrSSR). Vibrograms of the damped oscillations of a cantilever [illegible] at its end are adduced; the amplitudes of [illegible] vibrogram [illegible] with the amplitudes calculated by the small parameter method to a first approximation.

V.K. Kab[illegible]

Translator's note: This is the full translation of the original Russian abstract.

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A[illegible]/A[illegible]

167300

Translation from: Referativnyy zhurnal, Mekhanika, 1[illegible], N[illegible], [illegible], #[illegible]

AUTHOR: Pisarenko, G.S.

TITLE: Application of the Small Parameter Method to Studying Elastic System Oscillations With Hysteresis

PERIODICAL: Tr. Nauchno-tekhn. soveshchaniya po izuch. rasseyaniya energii [illegible] kolebaniyam uprugikh tel. Kiyev, AN UkrSSR, 1[illegible], [illegible]

TEXT: In a response to the remarks of Ya.G. Panovko and others (Tr. nauchno-tekhn. soveshchaniya po izuch. rasseyaniya energii pri kolebaniyam uprugikh tel. Kiyev, AN UkrSSR, 1[illegible], [illegible] - RZhMekh, 1[illegible], N[illegible], #[illegible]) the author adduces substantiations of the validity of the application of the small-parameter method to the solution of problems of the hysteresis type. Differential equations of elastic system oscillations, which are set up with allowance for damping, contain a small parameter, which the author assumes to be the magnitude of relative energy dissipation. The theoretical resonance curve plotted on the basis of the solution of such equations by the method of small parameters coincides, according to the data of the article, with the

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PISARENKO, G.S.

[illegible]gorenko, Ya. M. and Isakhanov, G.V. [illegible]

Scientific Conference on the strength of elements of turbo-machinery at elevated temperatures. (Nauchnoye soveshchaniye po voprosam prochnosti elementov turbomashin pri vysokikh temperaturakh).

[illegible]ICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1958, No.2, pp. 165-167 (USSR).

[illegible]ACT: A scientific conference was held in Kiev between September 28 and October 2, 1957 on problems of [illegible] of elements of turbo-machinery at elevated temperatures which was convened by the Institute of Metallo[illegible] and Special Alloys (Institut Metallokeramiki [illegible] Spetsplavov), the Institute of Structural [illegible] (Institut Stroitel'noy Mekhaniki) and the Institute of Thermal Power (Institut Teplotenergetiki [illegible] Ukrainskoy SSR) of the Ac.Sc., Ukrainian [illegible] people participated representing scientific [illegible] establishments and works of Moscow, Leningrad, Kharkov, Minsk, Kuybyshev, etc. In his [illegible] Corresponding Member of the Ac.Sc. Ukraine [illegible] pointed out the importance of the problem [illegible] temperature strength of components of [illegible]

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Conference on the strength of [illegible]
[illegible] at elevated temperatures.

A number of papers were read relating to [illegible]
heat conductivity and thermo-elasticity [illegible]
"Investigation of the temperature fields in [illegible]
Ye. P. Dyben reported on the theoretical and [illegible]
investigations of the steady state and the [illegible]
state thermo-conductivity in turbine rotors [illegible]
designs including investigations on concrete [illegible]
of rotors produced by the Kirov and Neva Works [illegible]
"Ekonomayzer" Works and others, carried out at [illegible]
Institute of Thermal Power, Ukrainian Ac.Sc. [illegible]
the temperature fields they used the method of [illegible]
investigation of non-steady state thermal [illegible]
by means of high frequency heating, the [illegible]
electro-thermal analogy by means of "ЭГДА" [illegible]
They obtained a solution of the problem of non-[illegible]
state thermal conductivity of a hollow cylinder [illegible]
finite length with a relatively general law of [illegible]
changes of the temperature and the heat transf[illegible]
coefficients. The Institute, jointly with the [illegible]
Gas Turbine Construction Works, developed a method [illegible]
cooling the discs by blowing cooling air through [illegible]

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modulus of elasticity along the radius and along the
generatrix, etc. In the investigations [illegible]
[illegible]
[illegible]
calculating a rotor of a two-stage [illegible]
[illegible] considering it as [illegible]

Scientific conference on the strength of elements of [illegible]
machinery at elevated temperatures.

system in which the following elements operate [illegible]
discs, shells and ring-shaped rods.
In his paper "Certain Methods of Solving the Axis
Symmetrical Problem of the Theory of Elasticity Taking
Into Consideration Mass Forces and the Temperature"
E. S. Umanskiy elucidated an approximate method of
calculation of the stress state.
The paper of V. I. Danilovskiy (Mechanics Institute,
Ac.Sc. USSR) was devoted to calculating the temperature
fields in thin shells.
The paper of A. I. Veynik (Power Institute, Ac.Sc. [illegible]
Russia) was devoted to an approximate method of solving

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

by I. A. Birger and B. F. Shor dealt with the investigations carried out by TsIAM on the thermal stresses in rods, taking into consideration variable elasticity parameters and also with the stress state of this [illegible] naturally twisted rods which are subjected to the [illegible] of external forces and [illegible] [illegible]

In the paper Transverse Stresses in Elements of [illegible] Turbines Under Conditions of Non-steady State Thermal

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

Scientific Conference on the Strength of Elements of Turbo-machinery at elevated temperatures.

Engineering Works imeni Lenin (Leningrad).

The representative of the Leningrad Metal Works, Engineer I. N. Shibalov conveyed information on the tests of equipment for heating individual elements of the BT-25-4 turbine during starting.

The second part of the conference was devoted to problems of the constructional strength of elements on turbo-machinery at elevated temperatures.

In his paper "Work of the Institute of Metalloceramics and Special Alloys, Ukrainian Ac.Sc. in the Field of High Temperature Strength" G. S. Pisarenko described certain results obtained by the team of the Strength Division of the Institute as regards the development of new methods and test equipment for studying the mechanical characteristics of high temperature materials at temperatures up to 1500°C, for high temperature static and dynamic tests of metalloceramic materials and of components and also certain results of investigations relating to dissipation of energy in heat resistant materials at normal and at elevated temperatures.

Card 6/9 The paper of G. S. Brokhin, A. B. Pistov and [illegible]

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

Conference on the Strength of Elements of Turbo-
at elevated temperatures.

"Technique of High Temperature Tests Applied by VNIITG" and that of Ye. N. German (VIAM) "On Certain New Methods of Testing High Temperature Metalloceramic Materials" and the paper of V. Z. Tseytlin, M. A. Filatova, A. V. Ryabchenkov and A. I. Maksimov (TsNIITMASh) "Long Duration and Fatigue Strength in Air and in Gaseous Media of a Nickel-Chromium Alloy Used for Transportation (Gas) Turbines" were all devoted to the study of high temperature materials. The results of natural investigations of elements of turbo-machinery were dealt with in papers presented by the personnel of TsKTI imeni Polzunov.

N. N. Kalinovskiy (NEI) dealt with the results of investigation of the carrying capacity and the long duration strength of specimens of gas turbine discs of new design and a complicated configuration under conditions similar to the operating conditions. The author described the features of the heating system and of the damping equipment which ensures the possibility of long duration tests of natural discs by means of rapid at a high temperature until disruption occurs and he also considered the deformations of a disc in the case of long

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

KOVALENKO, A.D.; KORNOUKHOV, M.V. [deceased], akademik; PEN'KOV, O.M.; PISARENKO, G.S. [Pysarenko, H.S.]; SAVIN, G.N. [Savin, H.M.], akademik; SERENSEN, S.V., akademik; FILIPPOV, A.P.

Development of the problem "Scientific fundamentals of force and plasticity" by the institutes of the Academy of Sciences of the Ukrainian S.S.R. Prykl. mekh. 4 no. 3:356-358 '58. (MIRA 11:8)

1. Institut stroitel'noy mekhaniki AN USSR, chlen-korrespondent AN USSR (for Kovalenko). 2. Laboratoriya gidravlicheskikh mashin AN USSR, chlen-korrespondent AN USSR (for Filippov). 3. AN USSR i Institut stroitel'noy mekhaniki AN USSR (for Kornoukhov). 4. Institut metallokeramiki i spetsplavov AN USSR, chlen-korrespondent AN USSR (for Pisarenko). 5. AN USSR i Institut mashinovedeniya AN USSR (for Serensen). 6. Institut gornogo dela AN USSR, chlen-korrespondent AN USSR (for Pen'kov). 7. AN USSR i Institut matematiki AN USSR (for Savin).

(Plasticity)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

SOV [illegible]

Translation from: Referativnyy zhurnal Metallurgiya, 1958, No. [illegible] SSSR

AUTHORS: Pisarenko, G. S., Chebotarev, V. A.

TITLE: An Apparatus for Testing Heat-resistant Materials for Creep-rupture Strength and Creep During Stretching and Bending (Ustanovka dlya ispytaniya zharoprochnykh materialov na dlitel'nuyu prochnost' pri zachest' pri rastyazhenii i izgibe)

PERIODICAL: V sb.: Vopr. poroshk. metallurgii i prochnosti materialov, No. [illegible] Kiyev, AN UkrSSR, 1958, pp. 120-133

ABSTRACT: A description is given of an apparatus for testing specimens [illegible] cermet materials for creep and creep-rupture strength during stretching and bending under the action of a constant load (up to [illegible]) at a temperature up to 1500°C. S 5 x 7 mm in cross section and [illegible] mm design length. Longer S with a 100-mm design length can be used. S were heated by conducting electric current through them. Loading is accomplished by means of hydraulic jacks and a system of levers which affords a steady increase of the load. The clamps are cooled [illegible] temperature does not exceed 40-60°. The apparatus provides [illegible] altaneous testing of six S under different load conditions. The

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SOV [illegible]

An Apparatus for Testing Heat resistant Materials for Creep [illegible]

temperature is recorded with photoelectric cells through a common op[illegible] pearing filament pyrometer can be used for this purpose. The temperature [illegible] pasted at regular intervals by means of special rheostats. The construction of the clamps is described as well as the technique for measuring the deformation [illegible] and the method for calibrating the load creating portion of the apparatus. M. S.

Card 2/2

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO

reports presented at Conference on
Relaxation Phenomena in Pure Metals and Alloys SOV-3-58-9-25/36

(Inter-vuz 1-4 Apr 58, Moscow Inst. Steel.
gave information on the application of the thermodynamics of non-balanced conditions. V.S. Postnikov (Kemerovskiy pedagogicheskiy institut - Kemerovo Pedagogical Institute) dealt in his report with questions of the internal friction of plastic deformed metals and alloys under increased temperatures. G.S. Pisarenko and V.V. Khil'chevskiy (Kiyev Polytechnic Institute and Institute of Metallo-Ceramics and Special Alloys UkrSSR AS) told the conference about a method of experimental examination of the energy dissipation in materials. A.A. Sazonova and K.F. Starodubov (Dnepropetrovsk Metallurgical Institute) reported on studies into the influence of annealing temperature after hardening, and isothermic hardening during the subsiding of oscillations in silicon spring steel. The report of M.F. Alekseyenko, Yu.V. Piguzov and L.S. Fedotova (Moscow Institute of Steel and the All-Union Institute of Aircraft Materials) was dedicated to the annealing friability of high-chromium steels and its influence on internal friction. S.N. Polyakov (Institute of Ferrous Metallurgy UkrSSR AS) spoke on the influence of manganese and molybdenum on the solubility of carbon in alpha-iron and on the kinetics of the separation of carbon, by internal friction, from a solid solution containing

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Vest. Vysshy Shkoly, [illegible] Y. V.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

SAMSONOV, G.V., otv.red.; FRANTSEVICH, I.N., red.; FEDORCHENKO, I.M., red.; PISARENKO, G.S., red.; YEREMENKO, V.N., red.; PADERNO, V.N., red.; KISINA, I.V., red.izd-va; LISOVETS, A.M., tekhn.red.

[Ceramic metal materials and methods of studying them; technical data] Metallokeramicheskie materialy i metody ikh issledovaniia; informatsionnye materialy. Kiev, 1959. 55 p. (MIRA 13:3)

1. Akademiia nauk URSR, Kiev. Instytut metalokeramyky i spetsyal'nykh splaviv.

(Ceramic metals)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

KHIL'CHEVSKIY, V.V. [Khil'cheve'kyi, V.V.]; SHASHLOV, V.I.; PISARENKO, O.S. [Pysarenko, H.S.], otv.red.; DZYATKOVSKAYA, N.P. [Dziatkivs'ka, N.P.] red.-leksikograf; RUMENNIK, T.K., red.izd-va; YEFIMOVA, M.I. [Iefimova, M.I.], tekhn.red.

[Russian-Ukrainian dictionary on mechanical engineering and general manufacture of machinery] Russko-ukrainskii slovar' po mashinovedeniiu i obshchemu mashinostroeniiu. 16000 terminov. Sost.V.V.Khil'chevskii i V.I.Shashkov. Kiev, 1959. 232 p. (MIRA 13:4)

1. Akademiya nauk USSR. 2. Chlen-korrespondent AN USSR (for Pisarenko).

(Technology--Dictionaries--Russian)
(Russian language--Dictionaries--Ukrainian)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

2*32* S/124/61/000/004/033/033
A005/A126

15 2610

AUTHOR: Pisarenko, G. S.

TITLE: The strength of brittle materials made according to the powder metallurgy methods

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1961, 57, abstract 4 V 257 (V sb.: Vopr. prochnosti materialov i konstruktsiy, Moscow, AN SSSR 1959, 52 - 62)

TEXT: The author studied the mechanical properties of carbide-silicon powder-metal materials. It turned out that these materials belong to the class of brittle inhomogeneous materials and that they are sufficiently rigid at temperatures up to 1,400°C; their strength is higher within the temperature range 1,100 - 1,200°C than at room temperature. If taking into account the patterns of stress state, stress concentration, and scale factor, the strength of the articles may be estimated according to the statistical theory suggested by Veybul.

I. Gryaznov

[Abstracter's note: Complete translation]

Card 1/1

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

SOV/21-59-8-8/26

AUTHORS: Vasilenko, M. V. (Vasilenko, N. V.), and Pisarenko, H. S. (Pisarenko, G. S.), Corresponding Member AS UkrSSR

TITLE: Forced Bending-Torsional Vibrations in Rods Under the Effect of Internal Energy Dissipation.

PERIODICAL: Dopovidi Akademii nauk Ukrainskoi RSR 19[illegible] Nr 8, pp [illegible] USSR

ABSTRACT: The article deals with the problem of forced bending torsional vibration in rods under the effect of internal energy dissipation. The differential equations of this problem, the axis of the symmetry being present in cross sections, is the following

$$\frac{EI}{l^4}\frac{\partial^4 y}{\partial x^4} + m\frac{\partial^2 y}{\partial t^2} + m x_c \frac{\partial^2 y}{\partial t^2} = eq\,x \cos pt - [illegible]$$

$$-\frac{Gid}{l^2}\frac{\partial^2 \theta}{\partial x^2} + I_m \frac{\partial^2 \theta}{\partial t^2} + m x_c \frac{\partial^2 y}{\partial t^2} = e m_x x \cos pt - [illegible]$$

$$0 \leq x \leq 1,\ 0 \leq t < \infty,$$

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Forced Bending-Torsional Vibrations in Rods under the Effect of Internal Energy Dissipation

whereby EI, GI_d means rigidities on bending and torsion respectively, m - mass of the unit of the girder's length, I_m - moment of the inertia of the mass of the girder's length unit, x_c - distance between the centers of weight and of rigidity of cross section, y(z,t) - camber; $\theta(z,t)$ - the angle of the torsion, q(z) - the intensity of loading along the axis of elasticity, $m_z(z)$ - intensity of the moment of this loading according to the axis of torsion; p - the frequency of the perturbing force; $\varepsilon_1(z,t)$ - bending vibrations, $\varepsilon_2(z,t)$ - torsional vibrations, $\varepsilon q(z)\cos pt$, $\varepsilon m_z(z)\cos pt$ - perturbing loadings; and ε - small parameters. For solving the problem of the differential equation of forced bending torsional vibration in rods under the effect of internal energy dissipation (see formula 1) the author applies the asymptotic method of N. N. Bogolyubov [Ref. 1].

There are 2 graphs and 7 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov AN USSR (Institute of Metal Ceramics and Special Alloys of the AS of UkrSSR)

Card 2/2 SUBMITTED: February [illegible]

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/124/63/000/002/045/052
D234/D308

AUTHORS: Pisarenko, G.S. and Khil'chevskiy, V.V.

TITLE: Investigation of energy dissipation in materials subjected to vibrations

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1963, 63, abstract 2V521 (In collection: Relaksats. yavleniya v metallakh i splavakh. M., Metallurgizdat, 1960, 37-54)

TEXT: The authors give the results of an investigation (on a vibrational vacuum installation) of the effect of degree of mechanical strengthening (cold hardening and ageing), duration of work under periodic load (training) and low and high temperatures on energy dissipation. Carbon steels, heat resistant steels, copper, refractory and alluminum alloys were studied.
[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

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S/124/61/000/009/032/058
D234/D303

10.7500

AUTHORS: Pisarenko, G.S. and Shchepetkina, N.I.

TITLE: On taking into account the hysteresis losses in vibrations of plates

PERIODICAL: Referativnyy zhurnal. Mekhanika, no. 9, 1961, 11, abstract 9 V89 (Tr. nauchno-tekhn. soveschaniya po dempfirovaniyu kolebaniy, 1958, Kiyev, AN USSR, 1960, 46-57)

TEXT: The problem of taking into account the hysteresis losses in free transverse vibrations of a plate is considered. In deducing general equations referring to plane stressed state, the non-linear dependence between the forces of inelastic resistance and deformation (proposed by N.N. Davidenkov for a single-axis stressed state, see Zh. tekhn. fiz., 1938, 8, no. 6) is assumed without explanations. Owing to weak non-linearity between the above quantities, the solution is limited to the term containing the first de-

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On taking into account...

gree of a small parameter. The problem of free vibrations of a plate supported along its outline is considered as an illustration.
[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PHASE I BOOK EXPLOITATION SOV/5305

Moscow. Institut stali

Relaksatsionnyye yavleniya v metallakh i splavakh; trudy Mezhvuzovskogo soveshchaniya (Relaxation Phenomena in Metals and Alloys; Transactions of the Inter-Institute Conference) Moscow, Metallurgizdat, 1960. 326 p.

Sponsoring Agency: Ministerstvo vysshego i srednego spetsial'nogo obrazovaniya RSFSR and Moskovskiy institut stali imeni I.V. Stalina.

Ed. (Title page): B.N. Finkel'shteyn; Ed, of Publishing House: Ye.I. Levit; Tech. Ed.: A.I. Karasev.

PURPOSE: This collection of articles is intended for personnel in scientific institutions and schools of higher education and for physical metallurgists and physicists specializing in metals. It may also be useful to students of these fields.

COVERAGE: The collection contains results of experimental and theoretical investigations carried out by schools of higher education and scientific research

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

Pisarenko, G.S., and V.V. Khil'chevskiy [Kiyevskiy politekhnicheskiy institut (Kiyev Polytechnic Institute)]. Analysis of the Energy Dissipation in a Material During Vibration 37

Suris, R.A. [Moscow Steel Institute]. On Dispersion Correlations in the Theory of Elastic Relaxation 55

Starodubov, K.F., and A.A. Sazonova [Dnepropetrovskiy metallurgicheskiy institut (Dnepropetrovsk Metallurgical Institute)]. Effect of the Tempering Temperature After Quenching and the Temperature of Isothermal Processing on the Vibration Damping in the Silicon Spring Steel 58

Piguzov, Yu.V., M.F. Alekseyenko, and L.S. Fedotova [Moscow Steel Institute and Vsesoyuznyy institut aviatsionnykh materialov (All-Union Institute of Aviation Materials)]. Effect of the Temper Brittleness of High-Chromium Steels on the Internal Friction 64

Chernikova, I.N. [Moscow Steel Institute]. Study of the Tempering of Carbon Steels by the Internal-Friction Method 85

~~Card 3/8~~

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G. S.

"Application of asymptotic expansion method to the investigation of mechanical systems with dissipation energy."

Paper presented at the Intl. Symposium on Nonlinear Vibrations, Kiev, [illegible], 9-19 Sep 61

Institute of Metal Ceramics and Special Alloys of Academy of Sciences of the Ukrainian SSR, Kiev, USSR

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, Georgiy Stepanovich [Pysarenko, H.S.]; TROSHCHENKO, Valeriy Trofimovich; FRANTSEVICH, I.M. [Frantsevych, I.M.], akademik, otv. red.; REMENNIK, T.K., red.izd-va; LIBERMAN, T.A., tekhn. red.

[Statistical theory of strength and its application to ceramic metal materials] Statystychni teorii mitsnosti ta ikh zastosuvannia do metalokeramichnykh materialiv. Kyiv, Vyd-vo Akad. nauk UkSR, 1961. 104 p. (MIRA 15:3)

1. Akademiya nauk UkSR (for Frantsevich).
(Ceramic metals) (Strength of materials)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PHASE I BOOK EXPLOITATION SOV/6032

Yeremenko, V. N., Resp. Ed.; I. N. Frantsevich, G. V. Samsonov, I. M. Fedorchenko, G. S. Pisarenko, V. V. Grigor'yeva, and V. I. Nizhenko, eds.

Poverkhnostnyye yavleniya v metallakh i splavakh i ikh rol' v protsessakh poroshkovoy metallurgii (Surface Phenomena in Metals and Alloys and Their Role in Powder-Metallurgy Processes). Kiyev, Izd-vo AN USSR, 1961. 213 p. 1710 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Ed. of Publishing House: Z. S. Pokrovskaya; Tech. Ed.: A. M. Lisovets.

PURPOSE: This collection of articles is intended for scientific research workers, engineers specializing in metals, and metallurgists. It may also be useful to advanced students at schools of higher education.

Card 1/7

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

33799
S/137/62/000/001/048/237
A060/A101

15 2610

AUTHOR: Pisarenko, G. S.

TITLE: On the problem of strength of materials obtained by the methods of powder metallurgy

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 37, abstract 10278 ("Poroshk. metallurgiya", 1961, no. 1, 30 - 35 [English summary])

TEXT: For brittle metallo-ceramic materials it is characteristic to have an increase in strength as the temperature increases. Thus, for Si carbide the maximum strength is observed at 1,100 - 1,300°C. The ultimate resistance of SiC to bending is greater by a factor of 2 or 3 than its ultimate resistance to tension. As a rule, these materials withstand cyclic loads poorly, in connection with their high sensitivity to stress concentration. On the basis of statistical considerations as to the distribution of inhomogeneities and microdefects, it is possible to predetermine the strength of brittle materials and calculate the state of stress with reliability, despite the dispersion in the indices of strength and ductility. General information as to the strength of porous structural materials is also set forth. The basic problems faced by investigators

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On the problem of...

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A060/A101

occupied with the problem of the scientific foundation of strength and ductility as applied to metallo-ceramic materials are indicated. See also Referativnyy zhurnal, Metallurgiya, no. 10, 1960, 23189.

R. Andriyevskiy

[Abstracter's note: Complete translation]

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/114/61/000/004/004/006
E194/E435

AUTHORS: Pisarenko, G. S., Corresponding Member AS UkrSSR
Troshchenko, V. T., Candidate of Technical Sciences
Kaplinskiy, L.A., Engineer and Gryaznov, B.A., Engineer

TITLE: An Investigation of the Fatigue Strength of Steel 1X13 (1Kh13) in Variable Bending With Static Tension

PERIODICAL: Energomashinostroyeniye, 1961, No.4, pp 29-31

TEXT. Analysis of turbine blade breakages shows that they are mostly due to fatigue. In most laboratory fatigue tests certain factors are not allowed for, including the presence under service conditions of appreciable tensile stresses due to centrifugal force. The present work describes an investigation of the influence on the fatigue strength of steel 1Kh13 in bending of a constant tensile stress which imitated the influence of centrifugal force. The tests were carried out at temperatures of 100 and 400°C on steel 1Kh13 with different kinds of heat treatment. The specimen geometry is shown in Fig.1. The heat treatment and the mechanical properties of the material is shown in table 1, where the second column gives the heat treatment

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conditions, the third column the test temperature and the last column gives the hardness In each case the first stage of heat treatment is hardening for 1000°C at 2 hours and the different kinds of tempering are (1) at 420°C for two hours (2) at 720°C for two hours and (3) at 760°C for two hours. The tests were made on a fatigue machine type НУ (NU) with a device for the application of static tension. The equipment was calibrated with two resistance strain gauges and graphs were plotted of the relationship between the bending stress in the specimen and the applied load for several values of static stress. The frequency of load application was 50 c/s. The specimen was heated by a resistance furnace The instrumentation is briefly described For the various heat treatments described above, Table 2 gives the test temperature and the tensile stresses (mean stresses over the cycle in kg/mm^2). The test results are plotted in Fig. 2 and 3 Fig. 2 corresponding to heat treatment conditions (1), curves (a) at 100°C and (b) at 400°C, Fig. 3 to tests at 100°C on (a) heat treatment conditions (2) and (b) heat treatment conditions (3). Table 3 gives the fatigue limits found for the various materials

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E194/E435

An Investigation of the Fatigue

The results are best presented in the form of graphs in coordinates of the mean stress in the cycle and the amplitude value of the fatigue limit. A diagram of this kind is plotted in Fig.4 for test results at 100°C. The numbers on the curves correspond to the different heat treatments The test results show that the mean stress of a cycle within the range of investigation has no influence on the fatigue limit in bending of steel 1Kh13 when the tempering temperature is low and the yield point and ultimate strength are high. On the other hand for the same steel deeply tempered to be of lower strength and greater plasticity, the fatigue limit is greatly reduced by increasing the maximum stress. In the absence of static loading the ratio of the fatigue limit to the ultimate strength for steel 1Kh13 is constant and does not depend on the heat treatment or test temperature, being 0.40 to 0.42 No appreciable difference was found between the fatigue limits of steel 1Kh13 at temperatures of 100 and 400°C. The work of M.F.Sichikov Z.D.Vishnevetskiy and D.L.Ginberg (Ref.1) is discussed and the following main conclusions are drawn. The application of appreciable constant

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S/114/61/000/004/004/006
E194/E435

An Investigation of the Fatigue

tensile stresses (up to 35 kg/mm^2) during variable bending does not reduce the fatigue limit of specimens of the first batch of steel 1Kh13 of high strength characteristics. For example, for this batch the maximum stress corresponding to the fatigue limit is 80 kg/mm^2 which is 96% of the yield point at 100°C. No reduction in the fatigue limit was found for this batch of specimens at a temperature of 400°C. On the other hand, tests on samples of the same steel which had been tempered at a higher temperature to ensure greater plasticity though lower strength (second and third batches) revealed considerable reduction of fatigue limit (by 24%) during investigations with static stress. These results, combined with other published work, show that there is no single relationship between the strength of steels and their sensitivity to the mean stress of the cycle. The fatigue limit of steels of high ultimate strength often does not depend on the mean stress of the cycle and vice versa. The results may be understood if one takes into account the appreciable irreversible energy dispersion in the material which occurs in steel 1Kh13 tempered at a high temperature. M. A. Voropayev (Ref. 9).

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Investigatio[illegible]

[illegible].V.Cochardt ([illegible] [illegible].Gol[illegible] [illegible]
and [illegible].V.Novikov ([illegible] [illegible]
contributions in this [illegible]
12 references: [illegible] Soviet [illegible] non-Sov[illegible]

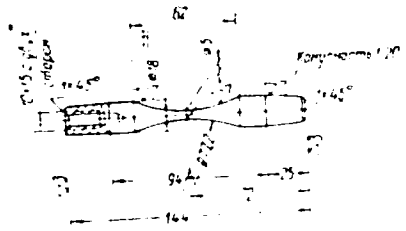

Fig.1.

Card 5/9

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

An Investigation of the [illegible] S/1[illegible]/61/000/004/0[illegible]/006 [illegible]/E435

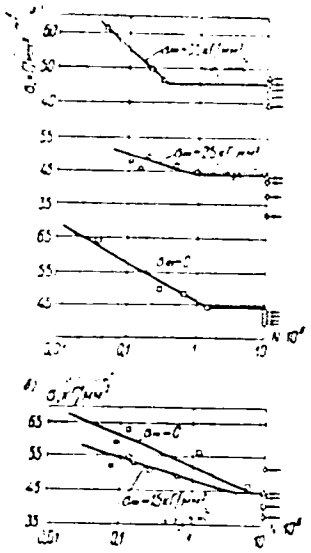

Fig.2.

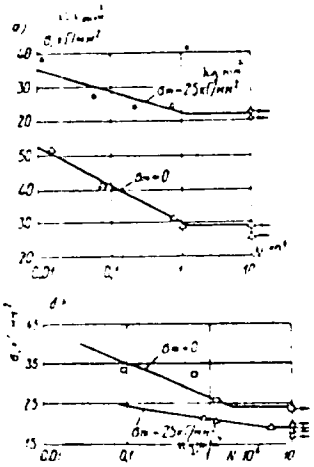

Fig.3.

Card 6/9

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n Investigati

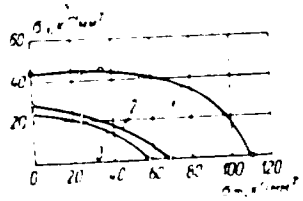

Fig.4.

Номер [illegible]	Режим термообработки	[illegible]	σ_m	σ_f	[illegible]	[illegible]
			[illegible]	[illegible]		
1	Закалка [illegible] воздух	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	отпуск [illegible] 2 часа воздух	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
2	Закалка 1000° 2 часа воздух	[illegible]	[illegible]	[illegible]	20.2	65.[illegible]
	отпуск 720° 2 часа воздух	100	56.[illegible]	68.[illegible]		[illegible]
3	Закалка 1000° 2 часа воздух	20	42.0	62.[illegible]	[illegible]	[illegible]
	отпуск 760°, 2 часа воздух	100	39.0	58.[illegible]		

Table 1.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

An Investigation of the Fatigue ... S/114/61/000/004/004/006
[illegible]/D435

Table 2.

ТАБЛИЦА 2

Номер партии	Режим термообработки	Температура испытания °С	Напряжения растяжения (среднее напряжение цикл) кГ/мм²		
1	Закалка 1000° С, 2 часа воздух, отпуск 420° С, 2 часа воздух	100	0	25	35
		400	0	15	[illegible]
2	Закалка 1000°, 2 часа, воздух, отпуск 720°, 2 часа воздух	100	0	25	[illegible]
3	Закалка 1000°, 2 часа воздух, отпуск 760°, 2 часа воздух	100	0	25	[illegible]

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An Investigation [illegible]

Table 3.

[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]
	[illegible]		41		41	[illegible]
	[illegible]	[illegible]	41	1.00	69	
		35	45	1.02	80	—
	100	0	43.5	—	43.5	0.42
		15	43.5	1.00	58.5	—
2	100	0	29		29	0.42
		25	22.2	0.76	47	—
3	100	0	24	—	24	0.41
	[illegible]	[illegible]	19	0.76	41	

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/123/62/000/014/014/020
A004/A101

AUTHORS: Borisenko, V. A., Pisarenko, G. S.

TITLE: Installation for investigating the hardness of metals and alloys over a wide temperature range

PERIODICAL: Referativnyy zhurnal, Mashinostroyeniye, no. 14, 1962, 34 - 34, abstract 14B198 ("Poroshk. Metallurgiya", 1961, no. 5, 95 - 101, English summary)

TEXT: The authors give a description of an installation designed by the AS UkrSSR intended for investigating the temperature dependence of the hardness of highmelting metals and alloys in the temperature range of from 20 to 2,000°C. It is possible to measure the hardness on the installation in an atmosphere of inert gases of high purity by the method of static impression of a sapphire indenter having the shape of a standard regular tetrahedral pyramid with angles between the opposite faces of 136° (at temperatures between 20 and 1,760°C) and by the method of one-sided flattening of conical specimens at higher temperatures. It is reported that a number of high-melting metals have been tested on the installation at temperatures ranging from 20 to 2,000°C. Up to a temperature of 1,750°C the method of static impression of the sapphire indenter was used, while in the

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

BORISENKO, V.A.; PISARENKO, I.S.

Equipment for the investigation of metal and alloy hardness in a wide temperature range. Porosh. met. 1 no.5:95-101 S-O '61. (MIRA 15:[illegible])

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
(Metals—Testing) (Hardness—Testing)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S. [Pysarenko, H.S.]; VASILENKO, N.V. [Vasylenko, M.V.]

Forced vibrations of a load eccentrically supported at the end of a cantilever bar. Dop. AN URSR no.9:1123-1126 '61. (MIRA 14:11)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
2. Chlen korrespondent AN USSR (for Pisarenko).

(Mechanics)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S. [Pysarenko, H.S.]; VASILENKO, N.V. [Vasylenko, M.V.]; KLIKH, Yu.A. [Klikh, IU.O.]

Coupled bending and torsional vibrations of a turbine blade passing through resonance. Dop. AN URSR no.10:1271-1274 '61. (MIRA 14:11)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
2. Chlen-korrespondent AN USSR (for Pisarenko).

(Turbines—Blades)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/032/61/027/001/021/037
B017/B054

AUTHORS: Tereshchenko, A. F. and Pisarenko, G. S.

TITLE: Effect of the Heating Method on Mechanical Characteristics of 1Х18Н9Т (1Kh18N9T) Steel in Elongation

PERIODICAL: Zavodskaya laboratoriya, 1961, Vol. 27, No. 1, pp. 81-84

TEXT: The authors made comparative studies of the effect of the heating method on mechanical characteristics (strength and refractoriness) of 1Х18Н9Т (1Kh18N9T) steel. Tests were made by the East-German test machine ДСТ-5 (DST-5). Asbestos-insulated specimens were heated by electric current and in a furnace; it was found that specimens heated by electric current showed a 5-8% decrease in strength. This is explained by the fact that electric heating causes uneven temperature distribution along the steel specimens. The authors studied the strength, plasticity, and local plastic deformation of the specimens. The elasticity and fusibility of specimens were higher when heated by electric current than in the furnace. In addition, mean and uniform elongation were lower, while local plastic deformation was higher. Relative shrinkage and maximum elongation in

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

Effect of the Heating Method on Mechanical Characteristics of 1Kh18N9T (1Kh18N9T) Steel in Elongation

S/032/61/027/001/021/037
B017/B054

percent were the same in both cases. There are 3 figures.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov Akademii nauk USSR (Institute of Powder Metallurgy and Special Alloys, Academy of Sciences UkrSSR)

Card 2/2

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, Grigoriy Stepanovich, doktor tekhn. nauk, prof.; KOZLOV, Igor' Andreyevich, kand. tekhn. nauk; SHUBENKO-SHUBIN, L.A., retsenzent; LUPANDIN, I.V., red. izd-va; STARODUB, T.A., tekhn. red.

[Carrying capacity of rapidly rotating disks]O nesushchei sposobnosti bystro vrashchaiushchikhsia diskov. Kiev, Gostekhizdat USSR, 1962. 47 p. (MIRA 15:10)

1. Chlen-korrespondent Akademii nauk Ukr. SSR (for Pisarenko, Shubenko-Shubin).

(Disks, rotating)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PHASE I BOOK EXPLOITATION SOV/6067

Pisarenko, Georgiy Stepanovich, Igor' Andreyevich Kozlov, Georgiy Nikolayevich Tret'yachenko, Leonid Vasil'yevich Kravchuk, and Igor' Vladimirovich Lebedev

Nekotoryye voprosy prochnosti lopatok i diskov gazovykh turbin; stoykost' lopatok protiv teplosmen i predel'naya nesushchaya sposobnost' diskov (Some Problems of the Strength of Gas-Turbine Blades and Disk; Thermal Shock Resistance of Blades and Ultimate Load-Carrying Capacity of Disk). Kiyev, Izd-vo AN UkrSSR, 1962. 74 p. 1660 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Resp. Ed.: G. S. Pisarenko; Ed. of Publishing House: B. A. Gryaznov; Tech. Ed.: T. R. Liberman.

PURPOSE: This booklet is intended for engineers and scientific research workers concerned with problems of the strength of turbine parts.

Card 1/[illegible]

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S., doktor tekhn. nauk, prof., red.; NOVIK, A.M., red.; SENCHENKO, V.V., tekhn. red.

[Problems of energy dissipation in the vibrations of elastic systems]Voprosy rasseianiia energii pri kolebaniiakh uprugikh sistém; trudy nauchno-tekhnicheskogo soveshchaniia. Pod red. G.S.Pisarenko. Kiev, Gos.izd-vo tekhn.lit-ry USSR, 1962. 223 p. (MIRA 16:1)

1. Chlen-korrespondent Akademii nauk Ukr. SSR (for Pisarenko).
(Elastic solids—Vibration)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PHASE I BOOK EXPLOITATION SOV/6342

Pisarenko, Georgiy Stepanovich, Valeriy Trofimovich Troshchenko, Vsevolod Georgiyevich Timoshenko, Vasiliy Aleksandrovich Kuz'menko, Georgiy Vakhtangovich Isakhanov, Georgiy Nikolayevich Tret'yachenko, Boris Alekseyevich Gryaznov, Nikolay Vasil'yevich Novikov, Vasiliy Nikitich Rudenko, and Rufina Gerasimovna Shamilova

Prochnost' metallokeramicheskikh materialov i splavov pri normal'nykh i vysokikh temperaturakh (Strength of Sintered Materials and Alloys at Room and High Temperatures) Kiyev, Izd-vo Akademii nauk UkrSSR, 1962. 274 p. Errata slip inserted. 2400 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Resp. Ed.: G. S. Pisarenko, Corresponding Member, Academy of Sciences USSR; Ed.: I. V. Lebedev; Tech. Ed.: Yu. B. Dakhno.

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APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PURPOSE: The book is intended for engineers, scientific research workers, aspirants, and students concerned with problems of the strength of sintered materials and structural parts.

COVERAGE: The book reviews the results of studying the strength, ductility, and elasticity of materials and structural parts produced by powder-metallurgy methods and presents brief information on these methods. Particular attention is given to methods of experimental investigation of physical and mechanical characteristics of heat-resistant sintered materials with specific properties, and to the description of a number of testing units developed for these investigations. Some problems of the theory of the strength of brittle sintered materials and high-porosity ductile materials are discussed. Laws governing changes in characteristics of strength and elasticity under the effect of various factors are outlined. The appendix includes reference tables with data on the basic mechanical characteristics of a number of sintered materials. The assistance of members of the Powder Metallurgy Institute V. I. Kovpak, Yu. A. Kashtalyan, L. V. Kravchuk, A. P. Yakovlev, V. K. Kharchenko, V. K. Kuz'menko, and V. A. Chebotarev is acknowledged. There are 141 references, mostly Soviet.

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PHASE I BOOK EXPLOITATION SOV/6147

Pisarenko, Georgiy Stepanovich

Rasseyaniye energii pri mekhanicheskikh kolebaniyakh (Energy Dissipation During Mechanical Vibrations). Kiyev, Izd-vo AN UkrSSR, 1962. 435 p. 2000 copies printed.

Sponsoring Agency: Akademiya nauk Ukrainskoy SSR. Institut metallokeramiki i spetsial'nykh splavov.

Resp. Ed.: G. N. Savin, Academician, Academy of Sciences UkrSSR. Ed. of Publishing House: T. S. Mel'nik; Tech. Ed.: M. I. Yefimova.

PURPOSE: This book is intended for engineers, aspirants, and scientific workers.

COVERAGE: Problems related to energy dissipation in material during mechanical vibrations are reviewed with significant emphasis placed on the experimental study of energy dissipation taking various factors into account. For certain mate-

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/124/63/000/002/047/052
D234/D308

AUTHORS: Pisarenko, G.S. and Mukhin, N.M.

TITLE: Investigation of the influence of absolute dimensions of specimens on the logarithmic decrements of damping of free torsional vibrations

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1963, 63, abstract 2V523 (In collection: Vopr. rasseyania energii pri kolebaniyakh uprugikh sistem. Kiev, Gos. izd-vo tekhn. lit. USSR, 1962, 111-122)

TEXT: Using specimens 8-12 mm in diameter, 120-1000 mm long, made of 45 and 37XH3A (37KhN3A) steels, of grey cast iron, of Л59 (L59) brass and of Д16 (D16) duralumin and a special apparatus ДМ-50 (DM-50) the authors studied the effect of the length of the specimen on the logarithmic decrement of free torsional vibrations. Geometry of conical heads, diameters of the working part, and radii of hollow chamfers were constant in each set of specimens. Only the length was varied. Mechanical working of specimens was

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chosen so that the cold hardening of the surface was minimal. The vibrating system was completely isolated from the base during the tests. The principal unit of the mechanical installation, a dynamic pendulum consisting of two massive discs between which the specimen was rigidly fixed, is suspended in a vertical position on a steel wire 3000 mm long and 0.5 mm in diameter. Torsional vibrations were excited by applying equal torques of opposite sign to the discs. After torsion up to a predetermined angle the torques were quickly removed and the free torsional vibrations of the specimen were recorded by ohmic resistance pickups glued to the specimen. The value of the logarithmic decrement for the 45 steel and for grey cast iron decreased by 20% when the length of the specimen was increased by a factor of 2, the stress being 680 kg/cm^2. When the length is increased by a factor of 4 the decrease of the decrement was 45%; it was still more considerable at higher stresses. The effect of longitudinal dimensions is the sharper the shorter the specimen and the larger its rigidity; it decreases with increasing yielding, i.e. length of the specimen. The effect of longitudinal dimensions on damping is less pronounced for chrome-nickel steel and brass, and is

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totally absent for duralumin. Consequently, materials with considerable mechanical hysteresis are especially sensitive to the effect of longitudinal dimensions, and materials without hysteresis are not affected by variation of length. In several cases the damping ability depends not only on the material but also on structural form of the component, i.e. on its longitudinal dimensions and rigidity. It is recommended to introduce a standard for dimensions of specimens for determining the damping characteristics of materials. [Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/124/63/000/002/046/052
D234/D308

AUTHORS: Pisarenko, G.S., Vasilenko, N.V. and Yakovlev, A.P.

TITLE: The dissipation of energy in rods during various types of oscillation

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 2, 1963, 63, abstract 2V322 (In collection: Vopr. rasseyaniya energii pri kolebaniyakh uprugikh sistem. Kiev, Gos. izd-vo tekhn. lit. USSR, 1962, 123-128)

TEXT: Using circular cylindrical cantilever specimens 10 mm in diameter, 100 mm long, made of Ст.3 (St.3) steel ($E = 2 \times 10^4$ kg/mm^2; $G = 0.8 \times 10^4$ kg/mm^2) the authors studied the energy dissipation (damping decrement) with flexural, torsional and combined vibrations. One end of a specimen was fixed by a special clip, the clamping force being the same for all specimens; the other end was shaped as a massive rectangular parallelopiped. Resonant flexural-torsional vibrations of a load excited by electromagnets caused flexural or torsional stresses in the specimen when the center of

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D234/D308

The dissipation of energy ...

gravity of the load coincided with the axis of the specimen, or combined stresses when the center of gravity of the load was eccentric to the axis of the specimen. When the vibration amplitudes of the specimen reached the calculated values the excitation was stopped and the free vibrations of a given type were recorded by the shadow method using a photo-optical transducer with a 9-loop oscillograph MПO-2 (MPO-2). In the processing of vibrograms the values of logarithmic decrement of damping were determined. The decrement increases if tangential stresses are added to normal stresses or vice versa. Therefore in dynamical calculations taking energy dissipation into account it is recommended to take into account the values of damping decrement determined under conditions similar to the operating conditions of the object to be designed.

[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/114/62/000/003/005/005
E193/E383

18.1151
26 V/V0

AUTHORS: Pisarenko, G.S., Corresponding Member of the AS UkrSSR and Novpak, V.I., Candidate of Technical Sciences

TITLE: Some results of a study of creep-resistance of steel 1Kh18N9T (1Kh18N9T) under unsteady conditions

PERIODICAL: Energomashinostroyeniye, no. 3, 1962, 38 - 40

TEXT: Laboratory creep tests are usually carried out at a constant temperature and under a constant load or stress. In contrast, certain parts of turbines, turbine rotor components in particular, operate under unsteady conditions, i.e. under conditions of varying stress and temperature. To assess the creep properties of metals operating under such conditions, many workers use the method of integrating relative time-to-rupture values:

$$\sum_{i=1}^{n} \frac{t_i}{\tau_i} = 1 \qquad (1)$$

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

S/114/62/000/003/003/005
E193/E383

Some results of ....

where t_i is the total holding time at a given i-th stress and temperature level under unsteady conditions,

τ_i denoting time-to-rupture determined for the same stress and temperature level but under a steady mode of operation.

This method is based on the assumption that time-to-rupture is independent of the number of cycles and that no irreversible structural changes take place at various temperature levels. It has been shown (Ref. 1: Rozanov, M.P. and Rusanova, Ye.I. Energomashinostroyeniye, no. 11, 1960; Ref. 2 - Getsov, L.B. and Taubina, M.G. - Teploenergetika, no. 9, 1960; Ref. 3: I.A. Oding and V.V. Burdukskiy - (Issledovaniye po zharoprochnym splavam Research for heat-resistant Alloys, v.6, AN SSSR, 1960 that this method gives reliable results only when each temperature or stress cycle lasts not less than 4 hours. When the cycles become shorter, the results of tests may be affected by the rate of heating from one temperature level to another and in these cases, the effect of this factor should be determined

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

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E193/E383

Some results of ....

experimentally. This was the object of the present investigation, carried out on steel 1Kh18N9T specimens, heat-treated by water-quenching from 1 150 °C, followed by 10 hours tempering at 800 °C. Experiments were carried out in specially designed apparatus, described in Ref. 4 - V.I. Kovpak - Zavodskaya laboratoriya, 1960, v.26, no. 7). An electric resistance furnace, maintained at the lower limit of the temperature cycle (600 °C) could be lifted clear of the test piece to enable it to be cooled in air to the lower temperature. Provision was made to pass electric current through the test piece to raise its temperature to the upper limit of the temperature cycle, the rate of heating attained being 2 °C/sec. In the first series of experiments, the following three types of temperature cycle were used:

1) heating the test piece (by passing the electric current) to 700 °C and cooling it to 600 °C, this stage lasting 6 min; holding the test piece at 600 °C for 120 min and cooling it to 250 °C; heating it to 700 °C, and so on. The load was taken off the test piece at the end of each cycle;

2) 2 hours at 600 °C, followed by rapid heating to 700 °C and cooling to 600 °C, this stage lasting 6 min; in this case, the

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E193/E383

Some results of ....

load was not taken off the test piece)
3) rapid heating and cooling between 600 and 700 °C, each cycle lasting 2.5 min.
The results of these tests in the form of time-to-rupture curves (stress σ in kg/mm^2, time in hours or number of cycles - Fig. 3B) are reproduced in Fig. 5, diagrams a, b and B relating to temperature cycles 1, 2, 3, respectively, each cycle being illustrated graphically in the righthand top corner of the appropriate diagram. Regarding diagram a, zone 5 (hached) represents the experimental results for unsteady conditions (cycle no. 1); curves 1, 2 and 3 represent results obtained in steady conditions at 600, 650 and 700 °C, respectively; curve 4 has been constructed analytically with the aid of the Robinson-Miller formula (Ref. 5 - Symposium ASTM Techn. Publ., 1954, no. 165):

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

$$\tau = \frac{\tau_1 (R - 1)}{R + \frac{1}{2}} \qquad (2)$$

where τ denotes the equivalent time (life) for a right-angle cycle,

τ_1 is the time-to-rupture at a constant test temperature $t_1 = 700\ ^{o}C$,

τ_2 is the time-to-rupture at constant test temperature $t_2 = 600\ ^{o}C$,

$R = \tau_1 / \tau_2$, which is a characteristic of the cycle denoting the ratio of the times during which the test piece has been held at t_1 and t_2.

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Crosses in Fig. 3c represent results obtained for cycle no. 2. Zone 3 (plotted for comparison) denotes results obtained for cycle no. 1; curve 1 represents results for steady conditions at 650 °C (equivalent to curve 2 in Fig. 3a); curve 3 is the theoretical curve constructed with the aid of the Robinson-Miller formula. Comparison of the experimental and theoretical data reproduced in Figs. 3a and b indicates that the above formula cannot be used even for approximate assessment of creep-resistance of metals operating under cyclic temperature variation. Regarding diagram 3b curve 1 relates to experimental results for cycle no. 3, curve 2 being constructed analytically. The last series of tests was conducted according to the following schedule: the test piece was held for 60 min at 600 °C under a stress σ and then for 60 min at 700 °C under a stress σ_2; the heating and cooling time was disregarded and the test piece was continuously under load; σ_1 and σ_2 were selected in such a way that if applied under steady conditions at the corresponding temperatures, they would give the same time-to-

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PISARENKO, G.S. [Pysarenko, H.S.]; VASILENKO, N.V. [Vasylenko, M.V.]

Second approximation in dynamic problems allowing for internal friction. Dop. AN URSR no.3:354-357 '62. (MIRA 15:6)

1. Institut metallokeramiki i spetsial'nykh splavov AN USSR.
2. Chlen-korrespondent AN USSR (for Pisarenko).
(Mechanics, Analytic)

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

DUBININ, V.P., inzh.; PISARENKO, G.S., inzh.

Response of EI-437B alloy to stress concentration due to continuous loading. Mashinostroenie no.6:90-92 N-D '62. (MIRA 16:2)

1. Institut metallokeramiki i spetssplavov AN UkrSSR.
(Nickel-chromium-titanium alloys—Testing)

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S/[illegible]1/62/[illegible]/[illegible]6/[illegible]/[illegible]
D251/D308

AUTHORS: [illegible]ret'yachenko, H.M., and Pysarenko, H.S., Corresponding Member of the AS UkrSSR

TITLE: On the basic concepts of the theory of regular thermal regimes

PERIODICAL: Akademiya nauk Ukrayins'koyi RSR. Dopovidi, [illegible], 1962, 745 - 748

TEXT: The authors discuss the problem of the rate of cooling, which is one of the basic concepts of theory of regular thermal regimes. G.V. Kondrat'yev assumed that the first term of Boussinesq's expansion of the general integral of Fourier's equation applied to the problem of cooling a body of arbitrary form, is sufficiently for practical purposes. The authors give an account of their theoretical and experimental investigations on the rate of cooling of [illegible] of different forms. In particular, it is shown by the example of a wedge that the rate of cooling is not independent of the coordinates, and hence Kondrat'yev's assumption is not generally valid. Hence, not all parts of the body can enter into a regular thermal regime.

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On the basic concepts of the ...

me, a fact which must be considered when the theory is used to determine temperature fields, the regular cooling of machine [illegible] models of multiphase dispersed materials and systems of bodies and also to determine the local coefficients of heat exchange. It is noted that the assertation of Kondrat'yev, that the position of the thermocouple has no effect on the value obtained in determining the rate of cooling, must be treated with caution. There are [illegible] figures.

ASSOCIATION: Instytut metalokeramiky i spetsial'nykh splaviv AN [illegible] (Institute of Metal Ceramics and Special Alloys, AS Ukr[illegible])

SUBMITTED: December 13, 1961

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PISARENKO, [illegible] [Pysarenko, H.S.]; BORYSENKO, V.A. [Borysenko, V. [illegible]

Study of the hardness of tungsten in the temperature range [illegible]. Dop. AN URSR no.8:1053-1056 '62.

1. Institut metallokeramiki i spetsial'nykh splavov AN [illegible]. [illegible] (MIRA [illegible])
2. [illegible] correspondent AN UkrSSR (for Pisarenko).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

KUZ'MENKO, Vasiliy Aleksandrovich; PISARENKO, G.S., otv. red.; POKROVSKAYA, Z.S., red.; KARTLINA, N.P., tekhn. red.

[Sound and ultrasound vibrations in the dynamic testing of materials] Zvukovye i ul'trazvukovye kolebaniia pri dinamicheskikh ispytaniiakh materialov. Kiev, Izd-vo AN Ukr.SSR, 1963. 150 p. (MIRA 16:12)

1. Chlen-korrespondent AN Ukr.SSR (for Pisarenko). (Ultrasonic testing)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

AGA:EV, Viktor Andreyevich [deceased]; PISARENKO, G.S., otv. red.; POKROVSKAYA, Z.S., red.; TURSANOVA, N.A., tekhn. red.; SPEKTROVA, T.K., tekhn. red.

[Method of initial functions for two-dimensional boundary value problems in the theory of elasticity] Metod nachal'nykh funktsii dlia dvumernykh kraevykh zadach teorii uprugosti. Kiev, Izd-vo AN USSR, 1963. 200 p. (MIRA 17:3)

1. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S., doktor tekhn. nauk, prof., red.; SHTUL'MAN, I.F., red.

[High temperature strength in the manufacture of machinery; transactions] Voprosy vysokotemperaturnoi prochnosti v mashinostroenii; trudy. Pod red. G.S.Pisarenko. Kiev, Izd-vo AN USSR, 1963. 335 p. (MIRA 17:6)

1. Nauchno-tekhnicheskoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktivnykh elementov pri vysokikh temperaturakh. 2d. Kiev, 1962.
2. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

KIYANITSA-GUSLISTAYA, N.N.[Kyianytsa-Hualysta, N.M.]; PISARENKO, G.S.[Pysarenko, H.S.], otv. red.; BILOSHTAN, A.P., kand. filolog. nauk, red.-leksikograf; IEVMENENKO, M.P., red.; LISOVETS', O.M.[Lysovets', O.M.], tekhn. red.

[Russian-Ukrainian dictionary on mechanics. 11,000 terms] Rosiis'ko-ukrains'kyi slovnyk z mekhaniky. 11 000 terminiv Kyiv, Vyd-vo AN URSR, 1963. 340 p. (MIRA 16:9)

1. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).
(Russian language--Dictionaries--Ukrainian)
(Mechanics--Dictionary)

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, G.S., red.

[Energy dissipation during the vibration of elastic systems; transactions] Rasseianie energii pri kolebaniiakh uprugikh sistem; trudy. Pod red. G.S.Pisarenko. Kiev, Izd-vo AN USSR, 1963. 375 p. (MIRA 17:5)

1. Nauchno-tekhnicheskoye soveshchaniye po voprosam kolebaniy s uchetom rasseyaniya energii. 4th, 1962. 2. Chlen-korrespondent AN Ukr.SSR.

APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7"

"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

YEREMENKO, V.N., otv. red.; FRANTSEVICH, I.N., red.; SAMSONOV, G.V., red.; PISARENKO, G.S., red.; FEDORCHENKO, I.M., red.; TRESVYATSKIY, S.G., red.; IVASHCHENKO, Yu.N., red.; POKROVSKAYA, Z.S., red.; RAKHLINA, N.P., tekhn. red.

[Surface phenomena in melts and in processes of powder metallurgy] Poverkhnostnye iavleniia v rasplavakh i protsessakh poroshkovoi metallurgii. Kiev, Izd-vo AN Ukr. SSR, 1963. 377 p. (MIRA 17:3)

1. Akademiya nauk URSR, Kiev. Instytut metalokeramiky i spetsial'nykh splaviv. 2. Institut metallokeramiki i spetsial'nykh splavov AN Ukr.SSR (for Yeremenko).

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(Surface [illegible] mena [illegible] of [illegible] [illegible]

[illegible]

[illegible] Institut metallokeramiki i spetsial'nykh splavov AN Ukr.SSR (for Ivashchenko, Yeremenko)

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MITROPOL'SKIY, Yu.A., akademik, otv. red.; BOGOLYUBOV, N.N., akademik, glav. red.; LUR'YE, A.I., red.; LYKOVA, O.B., kand. fiz.-matem. nauk, red.; NEMYTSKIY, V.V., prof., red.; PISARENKO, G.S., red.; POGREBYSSKIY, I.B., kand. fiz.-matem.nauk, red.; KORENYUM, [illegible].I., doktor fiz.-matem.nauk, red.; KOZUBOVSKAYA, I.G., red.; LISOVETS, A.M., tekhn. red.

[Proceedings of the International Symposium on Nonlinear Oscillations] Trudy Mezhdunarodnogo simpoziuma po nelineinym kolebaniiam. Kiev, Izd-vo AN USSR. Vol.2.[Qualitative methods in the theory of nonlinear oscillations] Kachestvennye metody teorii nelineinykh kolebanii. 1963. 538 p. [Applications of the method in the theory of nonlinear oscillations to problems in physics and technology] Prilozheniia metodov teorii nelineinykh kolebanii k zadacham fiziki i tekhniki. 1963. 513 p. (MIRA 17:1)

1. International S[illegible] Oscillations, Kiev, 1961. 2. Akademiya nauk Ukr.SSR (for Mitropol'skiy). 3. Chlen-korrespondent AN SSSR (for Lur'ye). 4. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).

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"APPROVED FOR RELEASE: 07/13/2001 CIA-RDP86-00513R001341020012-7

PISARENKO, Georgiy Stepanovich, prof., doktor tekhn. nauk; AGAREV, Viktor Andreyevich, kand. tekhn. nauk; KVITKA, Aleksandr L'vovich, kand. tekhn. nauk; POPKOV, Viktor Grigor'yevich, kand. tekhn. nauk; UMANSKIY, Emmanuil Solomonovich, kand. tekhn. nauk; ZELENYUK, Ye.Ye., inzh., red.izd-va; STARODUB, G.A., tekhn. red.

[Strength of materials] Soprotivlenie materialov. [By] G.S. Pisarenko i dr. Kiev, Gostekhizdat USSR, 1963. 790 p. (MIRA 17:2)

1. Chlen-korrespondent AN Ukr.SSR (for Pisarenko).

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ACCESSION NR: AR4046304 S/0044/64/000/008/B038/B039

SOURCE: Ref. zh. Matematika, Abs. 8B209

AUTHOR: Pisarenko, G. S.

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TITLE: Application of methods of asymptotic separations according to the degrees of the small parameter for the study of vibrations of mechanical systems, taking energy scattering in the material into account.

CITED SOURCE: Tr. Mezhdunar. simpoziuma po nelineyn. kolebaniyam, 1961. T. 3. Kiyev, AN USSR, 1963, 347-374

TOPIC TAGS: asymptotic separation, mechanical system vibration, energy scattering, vibration, free vibration, forced vibration, elastic system, lumped parameter, parameter of distribution, non-linearity, first approximation

TRANSLATION: Application of methods of asymptotic separation according to the degrees of the small parameter are examined, for solving problems on free and forced vibrations of elastic systems with lumped as well as distributed parameters. The non-linearity

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of the examined systems is contingent upon the fact of energy scattering in the material. It is assumed that the nonlinear dependency between stresses and deformations developed by N.N. Davidenko in his paper "On energy scattering in vibration" (Zh. tekhn. fiz., 1938, 8, No. 6, 483) is the most important physical substantiation. Accuracy of the first approximation is shown to be sufficiently satisfactory. N. Butenin

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S/030/63/000/001/004/013
B187/B101

AUTHOR: Pisarenko, G. S., Corresponding Member AS UkrSSR, Chief Scientific Secretary of the Academy of Sciences UkrSSR

TITLE: Utilization of scientific progress in the industry (Experience made by the Academy of Sciences Ukrainskaya SSR)

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 1, 1963, 45-50

TEXT: Plans to promote the industrial and economic exploitation of scientific progress through scientific collectives collaborating with institutes of the Academy of Sciences UkrSSR and with industrial and economic institutions were considerably stimulated by the conclusion of appropriate research contracts. About 1000 such contracts, to a total value of 12.2 million rubles, were arranged in 1962 (as against 466 contracts to a value of 3.7 million rubles in 1959). The following achievements and procedures were developed and brought into use: The Institut elektrosvarki im. Ye.O. Patona (Electric Welding Institute imeni Ye.O. Paton) increased the working output in the welding of gas pipes by 35-50% through the use of a new welding technique. The time required

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