"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

DIOMIDOV, Mikhail Nikolayevich; DMITRIYEV, Aleksandr Nikolayevich. Prinimal uchastiye ZAYDEL', G.A., inzh.; ZAYTSEV, V.P., kand. tekhn.nauk, retsenzent; OSOKIN, S.D., kapitan 2 ranga retsenzent; ZENKEVICH, L.A., red.; KAZAROV, Yu.S., red.

[Conquest of the depths] Pokorenie glubin. Izd.2., ispr. i perer. Leningrad, Sudostroenie, 1964. 383 p. (MIRA 18:3)

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

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', A.R.

Summation of series used in the theory of electric logging.
Prikl. geofiz. no.32;118-121 '62. (MIRA 15:7)
(Electric prospecting)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL, E.M.

Internal transformations and mechanical properties of cromansil steel. M. M. Kantor and E. M. Zaidel. *Kachestvennaya Stal* 4, No. 6, 31-4(1936); *Met. Abstracts* (in *Metals & Alloys*) 8, 230(1937). Sheets 2 mm. thick and contg. C 0.32, Mn 1.12, Si 1.30 and Cr 1.08% were investigated dilatometrically and by detn. of mech. properties. S-curve was detd. with isothermic decompn. The results were compared with properties produced by quenching and drawing. Isothermic decompn. yielded greater elongation and toughness with the same strength.
M. W. D.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', A.R.

Constructing isotherm charts on the basis of the solution of a heat conductivity equation. [Trudy] NILneftegaza no.10: 276-294 '63. (MIRA 18:3)

1. Nauchno-issledovatel'skaya laboratoriya geologicheskikh kriteriyev otsenki perspektiv neftegazonosnosti.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

MAYDEL', A.R.

Theory of the method of grounding resistance. Prikl. geofiz. No.40:194-197 '64 (MIRA 18:1)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', I.

Problems in mechanical engineering. Politekh.obuch. no.3:81-83 Mr '59. (MIRA 12:4)

(Mechanical engineering--Study and teaching)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', I.B.

Outpatient service for surgical patients. Med. sestra 22 no.10:36-37 O'63 (MIRA 16:12)

1. Iz 12-y polikliniki TSentral'nogo rayona Odessy.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', I.L.

Fitters' monkey wrench. Politekh.obuch. no.2:83 F '59.
(MIRA 12:3)

(Wrenches)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', I.L.

Educational tasks related to industry. Politekh. obuch. no.10:43-45 O '57. (MLRA 10:9)

(Technical education)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', I.L.

Five problems in industrial training. Politekh.obuch. no.11: 70-74 N '57. (MIRA 10:10)
(Physical measurements)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

L 07350-67 EWT(d)/EWT(m)/EWP(f)/EWP(v)/EWP(k)/EWP(h)/EWP(1) DJ

ACC NR: AP6012166 SOURCE CODE: UR/0413/66/000/007/0091/0091

45
B

AUTHORS: Brodskiy, S. I.; Zaydel', I. N.; Khaskovich, L. L.

ORG: none

TITLE: A remote control vacuum valve. Class 47, No. 180442

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 7, 1966, 91

TOPIC TAGS: vacuum technology, valve, remote control system

ABSTRACT: This Author Certificate presents a remote control vacuum valve containing a case, a lid, and a spring-loaded plate with a bellows connection. To simplify its construction and control and to make certain that the time of opening exceeds the time of closing, the valve is provided with a sealed opening formed by the lid, the bellows, and the plate (see Fig. 1). This opening is connected by a pipe to a distributor so that the opening is always in contact either with the compressed air or with the vacuum ducts.

UDC: 621.646.247-519

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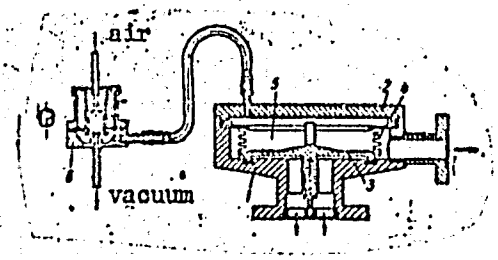
"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

L 07350-67

ACC NR: AP6012166

Fig. 1. 1 - valve case; 2 - lid; 3 - plate; 4 - bellows; 5 - sealed opening; 6 - distributor



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 05Apr63

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APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', K.E., inzh.; SHAROKHIN, G.I., kand.tekhn.nauk

Separate measurement of the uneven and the even harmonics of nonsinusoidal curves. Trudy MEI no.27:127-132 '58. (MIRA 13:4)

(Electric current rectifiers) (Magnetic amplifiers) (Electric circuits)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', Khristina Eduardovna, starshiy propodavatel'

Characteristics of cores of magnetic ampligiers with spontaneous magnetization. Izv.vys.ucheb.zav.; elektromekh. 3 no.2:127-131 '60. (MIRA 13:7)

1. Kafedra obshchey elektrotekhniki Moskovskogo energeticheskogo instituta.

(Magnetic amplifiers) (Cores (Electricity))

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

LIPMAN, R.A. (Moskva); NEGNEVITSKIY, I.B. (Moskva); ZAYDEL', Kh.E. (Moskva)

New operating modes and elements of the design of a two-cycle d.c. magnetic amplifier. Elektrichestvo no.4:63-67 Ap '63. (MIRA 16:5)
(Magnetic amplifiers)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

69200

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E194/E155

16,9500

AUTHOR: Zaydel', Kh.E., Senior Lecturer

TITLE: Core Characteristics of Amplidynes with Internal Feedback

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, Nr 2, pp 127-131 (USSR)

ABSTRACT: Analysis of the operation of both high-speed and ordinary amplidynes with internal negative feedback shows that in a given half-period the output voltage of the amplidyne is determined by the change in induction occurring in the core during the previous control half-period under the influence of the demagnetising signal in the control circuit. The mean output voltage of the amplidyne is given by the approximate expression (1). The change of induction itself depends not only on the control signal but on the amplifier circuit, the control circuit parameters and other factors. A special feature of amplidynes with internal negative feedback is that the change of induction is independent of the operating circuit constants. Given an experimental curve of the change of induction as a function of control field strength, it is possible to exclude the effects of the

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Core Characteristics of Amplidynes with Internal Feedback

control circuit constants, thereby obtaining a universal relationship between the control signal and the change in induction. The input-output characteristics of the amplidyne may then be constructed. The relationship between the change of induction and the field is termed the demagnetisation curve; a typical example is plotted in Fig 1. The shape of the curve depends on the frequency, eddy currents, magnetic characteristics of the core and other factors. Few amplidyne demagnetisation curves have been published, but Fig 2 shows such curves for toroidal-wound cores of steel grade E310 and permalloys 65NP, 50NP and 79NM, which are most commonly used in amplidynes. These demagnetisation characteristics may be determined either with a mean-value voltmeter or with a peak-value voltmeter measuring the integrated maximum output voltage. A schematic circuit diagram for the method using a mean-value voltmeter is given in Fig 3a. In this circuit and in that of Fig 3b, which corresponds to the use of a peak voltmeter, there is a signal source (1),

Card 2/4

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Core Characteristics of Amplidynes with Internal Feedback

a d.c. source (3), and in Fig 3a a mean value voltmeter (2) and in Fig 3b an integrator (4) and a peak voltmeter (5). The two methods of measurement are briefly considered. Sources of error are mentioned, together with ways of overcoming them. In the mean-value voltmeter method the most important part is the voltmeter. It operates under difficult conditions because the input waveshape has sharp peaks and when testing small cores the mean value of the voltage may be small. The difficulty in developing a sufficiently accurate peak voltmeter arises from the characteristics of actual rectifiers. In measuring small signals a valve diode has inadequate back resistance. However, if these difficulties could be overcome the method using a peak voltmeter would be the simpler and more accurate, and a special voltmeter is now being developed for this purpose. The graphs of Figs 5, 6 and 7 show on a large scale the demagnetisation curves for cores of steel E310 and alloys 65NP, 50NP, and 79NM at frequencies of 50 - 400 c/s. The curves were determined by means of the circuit

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E194/E155

Core Characteristics of Amplidynes with Internal Feedback

of Fig 4, where a controlled mechanical rectifier is used, corrections being made for external interference. Amplidyne designers should now be provided with sets of demagnetisation curves.
There are 7 figures and 5 references, of which 3 are Soviet and 2 English.

ASSOCIATION: Kafedra obshchey elektrotekhniki, Moskovskiy energeticheskiy institut
(Chair of General Electrical Engineering, Moscow Power Institute)

SUBMITTED: November 30, 1959

Card 4/4

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ANVEL'T, Moyya Yur'yevich; GERASIMOV, Viktor Grigor'yevich; ZAYDEL', Khristina Eduardovna; KOGEN-DALIN, Vladimir Viktorovich; LYSOV, Nikolay Yegorovich; MOROZOV, Dmitriy Nikolayevich; NITUSOV, Yevgeniy Vasil'yevich; PANTYUSHIN, Vasiliy Sergeyevich, prof.; PUKHLYAKOV, Yuriy Kharlampiyevich; SMIRNOV, Vladimir Aleksandrovich; UTKIN, Ivan Vasil'yevich; SHAROKHIN, Grigoriy Ivanovich; KASATKIN, A.S., retsenzent, red.; BORUNOV, N.I., tekhn.red.

[Electrical engineering; general course] Elektrotekhnika; obshchii kurs. Pod red. V.S.Pantiushina. Moskva, Gos.energ. izd-vo, 1959. 632 p. (MIRA 13:1)
(Electricity)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', Khristina Eduardovna, starshaya prepodavatel'nitsa
NEGNEVITSKIY, Iosif Borisovich, kand.tekhn.nauk, dotsent
SOLOVKIN, Eduard Leonidovich, aspirant

Device for testing the cores of self-saturating magnetic amplifers. Izv. vys. ucheb. zav.; elektromekh. 4 no.3:146-156 '61. (MIRA 14:7)

1. Kafedra obshchey elektrotekhniki Moskovskogo energeticheskogo instituta (for Zaydel', Solovkin). 2. Kafedra teoreticheskikh osnov elektrotekhniki Moskovskogo energeticheskogo instituta (for Negnevitskiy).

(Magnetic amplifiers)
(Cores(Electricity)—Testing)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', Kh.E. (Moskva); NEGNEVITSKIY, I.B. (Moskva); SOLOVKIN, E.L. (Moskva); TSAREVA, M.K. (Moskva)

Dynamic magnetic polarity reversal curves of self-saturating magnetic amplifier cores. Avtom.i telem. 24 no.2:248-254 F '63. (MIRA 16:1)

(Magnetic amplifiers)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

S/103/63/024/002/014/020
D201/D308

9,2530

AUTHORS: Zaydel', Kh.E., Negnevitskiy, I.B., Solovkin, E.L. and Tsareva, M.K. (Moscow)

TITLE: Dynamic demagnetization curves of cores of self-saturating magnetic amplifiers

PERIODICAL: Avtomatika i telemekhanika, v. 24, no. 2, 1963, 248-254

TEXT: The authors show that the dynamic demagnetization curve, as used in the Roberts method of control of magnetic amplifiers, makes it possible to calculate, with an accuracy sufficient for practical purposes, the input-output characteristic of a self-saturating magnetic amplifier and may be thus used for the amplifier design, control and core selection. The principle of the dynamic demagnetization curves has been used at the Moskovskiy energeticheskiy institut (Moscow Institute of Power Engineering) in the design of special equipment for the analysis of tape and toroidal cores of various dimensions and at various frequencies. The results obtained

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Dynamic demagnetization curves ... S/103/63/024/002/014/020
D201/D308

show clearly the dependence of curves on frequency and make it possible to determine the limiting frequency of the amplifier's supply and the corresponding material dimensions of cores. There are 7 figures.

SUBMITTED: April 9, 1962

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', Kh.E., inzh.

House wiring. Politekh. obuch. no.4:61-69 Ap '58. (MIRA 11:3)
(Electric wiring, Interior)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', L.; YERSHOV, B.A., assistent; DEDKOV, S., starshiy inzh.; BOGDANOV, (g.Krasnoyarsk); MAKKOVEYEV.(g.Krasnoyarsk); PUZANOV (g.Krasnoyarsk); MATORIN, I.; PROKOPOV, I.T. (g.Vinnitsa)

Continuing the discussion on centralized preparation of technical specifications. Mashinostroitel' no.8:38-39 Ag '62. (MIRA 15:8)

1. Nachal'nik otdela modernizatsii Kuybyshevskogo instituta NIPTIMASh (for Zaydel'). 2. Severozapadnyy zaochnyy politekhnicheskiy institut (for Yershov). 3. Upravleniya glavnogo mekhanika i energetika Vserossiyskogo soveta narodnogo khozyaystva (for Dedkov). 4. Nachal'nik konstruktorskogo byuro otdela glavnogo mekhanika zavoda "Gomsel'mash" (for Matorin).

(Machinery--Specifications)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

"An experiment in machine accounting in organizations of the Commissary General of the Ministry of Railroad Communication," Bukhgalter, uchet. 1948, No. 12, p. 36-42

SO: U-3850, 16 June 53, (Letopis 'Zhurnal 'nykh Statey, No. 5, 1949).

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

LYANDRES, Z.A., prof.; BORTFEL'D, S.A., starshiy nauchnyy sotrudnik; GOLOVINSKAYA, N.V., starshiy nauchnyy sotrudnik; ZAKREVSKIY, L.Z., starshiy nauchnyy sotrudnik; ZAYDEL', O.P., nauchnyy sotrudnik; MANUKHINA, Z.P., nauchnyy sotrudnik; BOYKOVA, O.S., nauchnyy sotrudnik

Concepts of the abnormalities of posture and scoliosis in children. Ortop., travm. i protez. 25 no.11:81-85 N '64. (MIRA 18:11)

1. Iz Detskogo ortopedicheskogo Instituta imeni G.I. Turnera (dir. - prof. M.N. Goncharova), Leningrad. Adres avtorov: Leningrad M-136, Lakhtinskaya ul., d.10/12, Detskiy ortopedicheskiy institut Turnera. Submitted January 27, 1964.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

24(8) SOV/20-124-1-15/69

AUTHORS: Zaydel', R. M., Ryzhov, O. S., Andriankin, E. I.

TITLE: On the Propagation of a Thermal Wave Which is Nearly Spherical (O rasprostranenii teplovoy volny, blizkoy k sfericheskoy)

PERIODICAL: Doklady Akademii nauk SSSR, 1959, Vol 124, Nr 1, pp 57-59 (USSR)

ABSTRACT: The influence exercised by slight disturbances on the propagation of a spherical heat wave has already been investigated by a previous paper (Ref 1). The present article shows that the spectrum of the eigenvalues and the corresponding eigenfunctions can be explicitly determined. The equation for the heat input in the case of nonlinear thermal conductivity can be written down in the form

$\frac{\partial W}{\partial t} = \frac{a}{k+1} \nabla^2 (W^{k+1})$, where W denotes the volume energy density. It is useful to introduce the function $F = W^k$, which satisfies the equation $\frac{\partial F}{\partial t} = a \left[F \nabla^2 F + \frac{1}{k} (\nabla F)^2 \right]$. First, the quantity of heat Q is supposed to be released at the origin of coordinates. The solution of this similarity problem is explicitly written down. Temperature

Card 1/3

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distribution behind the front of the thermal wave is of the form $F(r.\theta.\varphi.t) = F_0(r.t) + f(r.\theta.\varphi.t)$, where f is small compared to $F_0(r.t)$. In linear approximation the equation

$$\frac{\partial f}{\partial t} = a\left[f\nabla^2 F_0 + F_0\nabla^2 f + \frac{2}{k}(\nabla F_0)\nabla f\right]$$ is obtained for f,

and the solution is set up as $f(r.\theta.\varphi.t) = t^{\lambda}\Psi(\xi)Y_n^1(\theta.\varphi)$. Y_n^1 here denotes the spherical harmonics. The equation resulting for Ψ is then given. Non-uniform heating curves the front of the thermal wave. The course of calculation is followed, and the resulting expressions for the eigenvalues and eigenfunctions are written down. The eigenfunctions containing the spherical harmonics Y_n^1 with various indices are orthogonal. Eigenfunctions containing the same harmonic are orthogonal with a weight depending only on the index n. The system of eigenfunctions obtained is complete. The authors thank N. A. Popov for a useful discussion.- There are 5 Soviet references.

Card 2/2

Inst. Chem Physics AS USSR

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL, P. M. (Moscow)

"The Shock Wave Generated by a Piston of Small Curvature."

report presented at the First All-Union Congress on Theoretical and Applied Mechanics, Moscow, 27 Jan - 3 Feb 1960.

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

16.76

80242
S/040/60/024/02/003/032

AUTHOR: Zaydel', R. M. (Moscow)

TITLE: The Shock Wave Caused by a Weakly Curved Piston

PERIODICAL: Prikladnaya matematika i mekhanika, 1960, Vol. 24, No. 2 pp. 219-227

TEXT: The author considers the propagation of a shock wave caused by a piston which moves with the constant velocity U in the direction of the X-axis and whose surface is weakly cylindrical and described by $\varepsilon(Y) = \Delta \exp(ikY)$, where $K\Delta \ll 1$. If p', v'_x, v'_y are the perturbations of pressure and of the velocity components and if it is denoted:

$$KX = x, \quad Ket = y, \quad \frac{p'}{\rho e} = w, \quad v'_x = u, \quad v'_y = -iv$$

where ρ is the density and c the velocity of sound, then the linearized problem is reduced to the solution of

$$(1.3) \quad \frac{\partial w}{\partial y} + \frac{\partial u}{\partial x} + v = 0, \quad \frac{\partial u}{\partial y} + \frac{\partial w}{\partial x} = 0, \quad \frac{\partial v}{\partial y} - w = 0$$

with the boundary conditions

Card 1/2

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The Shock Wave Caused by a Weakly Curved Piston

(1.4) $n = 0$, $\frac{\partial w}{\partial x} = 0$ for $x = 0$; $u = Aw$, $\frac{\partial v}{\partial x} = Bw$ for $x = \beta y$ $(\beta < 1)$

and with the initial conditions

(1.5) $u = w = 0$, $v = UK\Delta$ for $x = y = 0$.

A, B, β are constants. By application of the Laplace transformation the formulated problem is reduced to the integration of the wave equation and to a difference equation. The solutions are obtained as infinite series in Bessel functions. Some limiting cases are investigated. The results coincide with those obtained by Freeman (Ref.1) in another way.

There are 4 references: 3 Soviet and 1 English.

SUBMITTED: August 30, 1958

Card 2/2

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL'

S/020/60/133/02/16/068
B019/B060

AUTHORS: Zaydel', R. M., Semendyayev, K. A.

TITLE: Limit Solutions to the Nonlinear Equation of the Parabolic Type

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 133, No. 2, pp. 311-314

TEXT: By (1) the authors write down the nonlinear parabolic equation $(1/a)\cdot\partial F/\partial t = F\Delta F + (1/k)(\nabla F)^2$, which has the form of (2) in the one-dimensional case. The solution of the wave type of equation (1) is investigated by proceeding from the form (4) of the solution. The condition of equilibrium in the wave front and the accelerated motion of the latter are discussed, and the course of the integral curves of equation (6) is discussed on the strength of Fig. 1. Several values are compiled in Table 1 for the desired exponent α (4) and, finally, the construction of solutions is discussed. There are 3 figures, 1 table, and 5 Soviet references.

Card 1/2

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

86388

S/020/60/135/002/008/036
B019/B077

10.6121

AUTHORS: Zaydel', R. M., Lebedev, V. S.

TITLE: Stability of a Spherical Converging Shock Wave

PERIODICAL: Doklady Akademii nauk SSSR, 1960, Vol. 135, No. 2, pp. 277 - 279

TEXT: The authors investigated the stability of a powerful converging shock wave in an ideal gas with an adiabatic factor $\gamma = 7$. Equations for the undisturbed flow and the particular solutions of the linearized hydrodynamic equations are given. It is shown that all localised initial perturbations given for $0 \leq z \leq \infty$ do not vanish for $z \to \infty$ and can be expanded in a power series of z. Analytical methods are employed to determine the lower limits of stability for various initial conditions. Similar conditions are used for the case where initial perturbations are concentrated in a certain range. It is demonstrated how to analyze the poles and consider a superimposed eddy in the particular solutions. The added solutions do not influence the shock wave front. The authors thank Academician A. D. Sakharov for this topic and his interest in their work,

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Stability of a Spherical Converging Shock Wave

S/020/60/135/002/008/036
B019/B077

and Academician Ya. B. Zel'dovich, I. M. Gel'fand, Corresponding Member of the AS USSR, N. N. Meyman, M. A. Yevgrafov, and K. V. Brushlinskiy for their valuable discussions. There are 1 figure and 3 Soviet references.

PRESENTED: June 16, 1960, by A. D. Sakharov, Academician

SUBMITTED: November 11, 1959

Card 2/2

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S/020/61/136/005/026/032
B101/B206

11.8300

AUTHOR: Zaydel', R. M.

TITLE: Stability of detonation waves in gas mixtures

PERIODICAL: Doklady Akademii nauk SSSR, v. 136, no. 5, 1961, 1142-1145

TEXT: The study of the stability of a detonation wave (DW) is important for explaining the "spin detonation". The stability of DW with respect to slight perturbations is studied in this paper. A Cartesian system of coordinates is assumed, which moves along with the front of the flame in the direction of the OX axis. The front of the flame is identical with the YOZ plane. All quantities are constant in the zone of the chemical peak (range 1). A reaction takes place at a distance $L = v_1\tau$ from the front, so that the final state 2 is obtained by a jump. In it, p_2, ρ_2, and v_2 are also constant. An ideal gas with constant specific heat is studied. The perturbations depend only on x, y, t, and the velocity component along the OZ axis is assumed to be equal zero. For the linearized hydrodynamic equations in the range 1, $A_s \exp[i(k_s x + k_0 y - \omega t)]$ $(s = 1,2,3)$ is written

Card 1/8

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down as solution, k_0 being the given wave number and ω the wanted eigenfrequency; A_s are constants, $k_1 = \omega/v_1$; k_2 and k_3 are defined by the equation $(v_1k-\omega)^2 - c_1^2(k_0^2+k^2) = 0$. For the range 2, $B_s = \exp\left[i(q_s x+k_0 y-\omega t)\right]$, $(s = 1,2,3)$ is written down. B_s are constants; $q_1 = \omega/v_2$; q_2 and q_3 are defined by the equation $(v_2q-\omega)^2 - c_2^2(k_0^2+q^2) = 0$, with $v_2 < c_2$, the perturbation may spread along the direction of gas flow $(q = q_2)$ or in opposite direction $(q = q_3)$. The problem is set to find a nontrivial solution for the condition that the amplitude of the wave reaching the front from infinity, equals zero. For the reaction in a gas particle, $d\psi/dt = f(p,T)$ (1) is written down. ψ is the concentration of a component of the mixture. If the reaction has started at the moment t and is terminated at the moment $t+\tau$, the following is valid:

$\psi_2 - \psi_1 = \int_t^{t+\tau} f(p_1;T)dt'$ (2). $p = p_1$; $T = T_1$; and

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$\Psi_2 - \Psi_1 = \int_t^{t+\tau+\tau'} f(p_1+p_1'; T_1+T_1')dt'$ (3) are assumed as approximation, τ' indicating a small change of the retardation caused by perturbations of pressure and temperature in range 1 (p_1', T_1'). After introduction of $M = \partial \ln f/\partial \ln p$; $N = \partial \ln f/\partial \ln T$ and restriction to first-order terms, $\tau' = -\int_t^{t+\tau} (Mp_1'/p_1 + NT_1'/T_1)dt'$ (4) was found. The distance traveled by the particle along the OX axis in the time interval between t and $t+\tau+\tau'$ is $l = \int_t^{t+\tau+\tau'} (v_1+v_{1x}')dt' \approx L+v_1\tau'+\int_t^{t+\tau} v_{1x}'dt'$ (5). v_{1x}' is the perturbation of the x-component of velocity. If the reaction is started at the moment t at point $\xi_1(t)$, it terminates at $t+\tau+\tau'$ at point $x = L + \xi_2(t+\tau+\tau') \approx L + \xi_2(t+\tau)$ with $\xi_1(t) + l = L + \xi_2(t+\tau)$. By substituting (4) and

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(5), $v\int_t^{t+\tau} (Mp_1'/p_1 + NT_1'/T_1 - v_{1x}'/v_1)dt' - \varepsilon_1(t) + \varepsilon_2(t+\tau) = 0$ is obtained as the wanted condition. By substituting the solutions into the boundary conditions one obtains a system of nine linear homogeneous equations. $G_2D_3 - G_3D_2 = 0$ (6) is the condition for the determinant of the system becoming zero, the following being defined:

$$G_s = \frac{\omega}{a_s}\left[1 + \left(\frac{\omega}{k_0 v_1}\right)^2\right] + \frac{1-\delta}{2}\left[\frac{v_0}{v_1} + \left(\frac{\omega}{k_0 v_1}\right)^2\right],$$

$$D_s = \frac{E}{a_s} - \frac{v_0 - v_1}{1 + (\omega/k_0 v_1)^2}\left[1 + \frac{v_1}{v_0}\left(\frac{\omega}{k_0 v_1}\right)^2\right] E_s R_s,$$

$$E_s = \left(\mu\frac{v_1^2}{c_1^2} + 1 + \frac{\omega}{a_s}\right)\frac{F_1}{v_1 a_s} - \frac{F_s}{c_s^2}, \qquad (7)$$

$$F_s = \frac{1-\alpha}{2\alpha}\left(h_s - \frac{v_0}{v_s}\right)\left\{\frac{k_0}{a_s}\left[1 + \left(\frac{\omega}{k_0 v_1}\right)^2\right] - \right.$$

$$\left. - \frac{\omega}{k_0 v_1}\left(\frac{1}{v_1} - \frac{1}{v_s}\right)\left(\frac{2\omega}{a_s}\frac{v_s}{v_1} + 1 - \frac{v_1^2}{c_1^2}\right)\right\} -$$

$$- \frac{k_0}{2(v_s q_s - \omega)}\left[1 + \left(\frac{\omega}{k_0 v_1}\right)^2\right]\left\{\frac{c_s^2}{\gamma_s v_1^2}\left(h_s + \frac{p_1}{\rho_s}\right)\left[\left(1 - \frac{v_1}{v_s}\right)\frac{2\omega}{a_s} + \right.\right.$$

Card 4/8

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$$+\left(2-\frac{v_1}{v_2}\right)\left(1-\frac{v_1^2}{c_1^2}\right)\Big]+\left(\frac{v_2}{v_1}-1\right)\left(1-\frac{v_1^2}{c_1^2}\right)\Big\},$$

$$R_s = e^{i a_s \tau} - 1, \quad a_s = v_1 k_s - \omega, \quad s = 2, 3;$$

$$E = i\omega\tau\left(\frac{1}{v_1}-\frac{1}{v_0}\right)\left[\frac{v_0 - v_1}{1+(\omega/k_0 v_1)^2} + \frac{2v_1 N}{1-\delta}\left(\frac{v_1^2}{c_1^2}-\delta\right)\right]F_1 + F_0,$$

$$F_0 = \frac{k_0}{\gamma_2}\left(\frac{1}{v_2}-\frac{1}{v_0}\right)\left(h_2+\frac{p_0}{p_2}\right)\left\{\frac{\omega}{v_2 q_2 - \omega}\left[1+\left(\frac{\omega}{k_0 v_2}\right)^2\right]+\frac{1-\alpha}{2}\left[\frac{v_0}{v_2}+\left(\frac{\omega}{k_0 v_2}\right)^2\right]\right\},$$

$$F_1 = \frac{k_0}{\gamma_2}\left(\frac{1}{v_1}-\frac{1}{v_2}\right)\left\{\frac{\omega}{v_2 q_2 - \omega}\left[1+\left(\frac{\omega}{k_0 v_2}\right)^2\right]\left(h_2+\frac{p_1}{p_2}\right)+\right.$$

$$\left.+\frac{h_2+1}{2}\left(1-\frac{v_2^2}{c_2^2}\right)\left[\frac{v_1}{v_2}+\left(\frac{\omega}{k_0 v_2}\right)^2\right]\right\}, \tag{8}$$

$$h_1 = \frac{\gamma_1+1}{\gamma_1-1}, \quad h_2 = \frac{\gamma_2+1}{\gamma_2-1}, \quad \mu = \gamma_1 M + (\gamma_1 - 1)N,$$

$$\delta = -j^2\left(\frac{\partial V_1}{\partial p_1}\right)_H = \frac{c_0^2}{v_0^2}, \quad \alpha = -j^2\left(\frac{\partial V_2}{\partial p_2}\right)_H = j^2\frac{h_2 V_2 - V_0}{h_2 p_2 + p_0},$$

$$V_0 = 1/\rho_0, \quad V_1 = 1/\rho_1, \quad V_2 = 1/\rho_2, \quad j = \rho_0 v_0.$$

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(γ_1, γ_2 are the exponents of the isentropic line). The following is obtained for $k_0L \ll 1$, $\tau = 0$, from (6):

$$\left[\omega/(v_2q_2-\omega)\right]\left[1+(\omega/k_0v_2)^2\right] + \left[(1-\delta)/2\right]\left[v_0/v_2+(\omega/k_0v_2)^2\right] = 0 \quad (9).$$

$|R_3| \gg |R_2|$ and $|D_3| \gg |D_2|$ are valid for $k_0L \gg 1$. G_2 becomes equal to zero and

$$\left[\omega/(v_1k_2-\omega)\right]\left[1+(\omega/k_0v_1)^2\right] + \left[(1-\delta)/2\right]\left[v_0/v_1+(\omega/k_0v_1)^2\right] = 0 \quad (10).$$

Instability sets in at $k_0L \sim 1$. It is proved for $\omega = 0$ and $k_0 = \varkappa$ that $\varkappa$ becomes real if

$$\mu\left(\frac{v_2}{v_1}-1\right)\frac{v_1^2}{c_1^2} > 2-\frac{v_2}{v_1}+\left[2\frac{v_2}{v_1}-1+(\gamma_2-1)\left(\frac{v_2}{v_1}-1\right)\frac{v_2^2}{c_2^2}\right]\sqrt{\frac{1-v_1^2/c_1^2}{1-v_2^2/c_2^2}}. \quad (11)$$

If equation (6) is expanded in a power series of ω and $k_0 - \varkappa$, the quantity $\Omega = -i\omega$ becomes positive near the point $k_0 = \varkappa$. $v_2 = c_2$ is valid under the conditions by Chapman-Jouguet. It is assumed that $p_0 = 0$; $\gamma_1 = \gamma_2$

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$= (h+1)/(h-1)$. Equation (6) acquires the form:
$(1/2)w(u_2-u_3)B+\Phi_2\Psi_2R_2-\Phi_3\Psi_3R_3=0$ (12), the following being defined:

$$B = h - \frac{(h-1)(h+2)}{h+1}\left(\frac{h^2-1}{1-w^2}+2N\right)w\xi,$$

$$\Phi_s = w(u_s-w) - \frac{h+1}{2h}(h-w^2),$$

$$\Psi_s = (h-1)(h+2)\left(\frac{\mu}{h+1}+2+\frac{w}{u_s-w}\right)\frac{w}{u_s-w}+h(h+1), \quad (13)$$

$$R_s = e^{-\xi(u_s-w)}-1,\ s=2,3,\ w=\Omega/k_0v_1,\ \xi=k_0v_1\tau,$$

$$u_{2,3} = [-w\pm\sqrt{(h+1)(h+w^2)}]/h$$

F(w) is substituted for the left-hand side of (12). When $w \to +\infty$, $R_3 \gg R_2 \gg 1$. If $\mu > (h+3)(h+1+\sqrt{h+1})/(h-1)(h+2)$ (14), then $F(+\infty) < 0$, and (12) has a curl $w > 0$. Condition (14) is thus sufficient for the instability of DW under the condition by Chapman-Jouguet. S. P. D'yakov

Card 7/8

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Stability of detonation waves ...

and K. I. Shchelkin are mentioned. There are 1 figure and 4 Soviet-bloc references.

PRESENTED: August 18, 1960, by Ya. B. Zel'dovich, Academician

SUBMITTED: April 28, 1960

Card 8/8

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', R.M. (Moskva); ZEL'DOVICH, Ya.B. (Moskva)

Possible conditions of stationary combustion. PMTF no.4:27-32 Jl-Ag '62. (MIRA 16:1)

(Combustion)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', R.M. (Moskva)

The feasibility of stable combustion. PMTF no.5:80-82 S-O '62. (MIRA 16:1)

(Combustion)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', R.M.; ZEL'DOVICH, Ya. B. (Moskva)

One-dimensional instability and damping of a detonation.
PMTF no. 6:59-65 N-D '63. (MIRA 17:7)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', R.R.

AUTHOR: Zaydel', R.R., Engineer 67-58-2-10/26

TITLE: Automatic Safety Mechanism to Prevent a Breakdown in a "Turbodetander" of the Device BR -1 (Avtomaticheskaya zashchita turbodetandera bloka BR -1 ot raznosa)

PERIODICAL: Kislorod, 1958, Nr 2, pp. 47-49 (USSR)

ABSTRACT: The force developed in the plant BR -1 by a "turbodetander" (engine driven by compressed gas) is transmitted by means of a reduction system of the gears to the electric generator, from where it is collected as a driving force. The device operates in such a manner that this generator serves as a starter and begins to perform its normal functions as soon as the turbogenerator reaches its working scope. It may happen on this occasion that the voltage on the terminals of the electric generator is reduced and its number of revolutions may rise to an extent that is no longer permissible. In order to prevent such a dangerous situation from arising, a protective device is suggested which is characterized by the fact that, as soon as the number of revolutions of the electric generator exceeds its limit, air supply

Card 1/2

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Automatic Safety Mechanism to Prevent a Breakdown in a "Turbodetander" of the Device BR -1 67-58-2-10/26

to the "turbodetander" is automatically reduced or cut off entirely by means of an additional cutout valve. The function of this additional device is then described on the basis of a wiring diagram. There are 4 figures.

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1. Laboratory equipment—Safety measures 2. Laboratory equipment—Characteristics

Card 2/2

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10 (7) SOV/67-59-4-3/19

AUTHOR: Zaydel', R. R., Engineer

TITLE: On the Number of Vanes on the Wheel of an Expansion Turbine by Compressed Gas

PERIODICAL: Kislorod, 1959, Nr 4, pp 15-22 (USSR)

ABSTRACT: The centripetal expansion turbines, as worked out by Academician P. L. Kapitsa at the Institut fizicheskikh problem Akademii nauk SSSR (Institute for Problems of Physics of the Academy of Sciences, USSR), featuring radial inflow and central outflow, and serving for the economical air liquefaction at low pressures, can be simplified and improved on the strength of experimental results and calculations made by the author, in that the number of vanes on the wheel is reduced from 72-116 to 16-18. This is said to result in a better efficiency of the machine. A lower number of vanes will also make it possible for the wheels to be manufactured of light aluminum alloys, e.g. the type AK; solidity and stability of the wheels will thus be increased greatly. It also follows that the speed of rotation can be increased to such an extent as to permit the utilization of a one-step unit for considerably greater temperature gradients than was hitherto possible. Such a

Card 1/2

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On the Number of Vanes on the Wheel of an Expansion Turbine Driven by Compressed Gas SOV/67-59-4-3/19

turboengine was experimentally tested at the VNIIKIMASh (All-Union Scientific Research Institute of Oxygen Machine Construction). Numerous details of this experimental type (TDR-3) are discussed: figure 6 shows its cross section, figure 7 its characteristics. The industrially produced type TDR-15000 (17 vanes of AK-6 - of figure 10) is likewise discussed in detail and shown in cross section (Fig 8). This machine had been projected for a wheel with 72 steel vanes (Fig 9) (in the system type BR-1). Reduction of vane number resulted in an increase of efficiency to 83%. There are 11 figures and 6 references, 5 of which are Soviet.

Card 2/2

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ZAYDEL', R.R., inzh.

Protecting the turbine-type expander in the BR-1 unit from overspeeding. Kislorod 11 no.2:47-49 '58. (MIRA 11:6)
(Gas turbines) (Electric circuit breakers)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

PHASE I BOOK EXPLOITATION SOV/5264

Zaydel', Rafail Ruvimovich

Turbodetandery kislorodnykh ustanovok (Expansion Turbines for Oxygen Plants). Moscow, Mashgiz, 1960. 175 p. Errata slip inserted. 4,500 copies printed.

Reviewer: K.S. Butkevich, Docent; Ed.: V.V. Bystritskaya, Engineer; Ed. of Publishing House: Ye.Ya. Savel'yev; Tech. Ed.: V.D. El'kind; Managing Ed. for Literature on General Technology: A.P. Kozlov, Engineer.

PURPOSE: This book is intended for technical personnel of design offices, design organizations, and factories who are engaged in the construction and operation of expansion turbines. The book may also be useful to students at tekhnikums, and schools of higher technical education who are studying the process of low-temperature cooling.

COVERAGE: The theory, design and methods of constructing expansion turbines used for the expansion of gases in oxygen plants are discussed. Design methods are explained with the aid of detailed examples. A separate chapter is devoted to a description of the expansion turbines used in industry. P.L. Kapitsa, Academician, is mentioned in connection with the design of expansion turbines. There

Card ~~1/5~~

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Expansion Turbines (Cont.) SOV/5264

are 29 references: 23 Soviet, and 6 German.

TABLE OF CONTENTS:

Foreword 3

Basic Symbols 4

Ch. I. Introductory Concepts
1. Purpose and field of operation of expansion turbines 5
2. Basic elements of the centripetal expansion turbine 5
3. Basic concepts 10
4. Parameters of the [gas] passage section 13
16

Ch. II. Working Process and the Efficiency of the Passage Section 20
5. Interrelationship between the efficiency and the passage parameters 20
6. Coefficient of the circumference velocity at the regular outlet 28

Card ~~2/5~~

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

S/114/61/000/002/004/007
E194/E255

AUTHOR: Zaydel'man, R. L., Candidate of Technical Sciences

TITLE: The Influence of the Arrangement of the Binding Wire on the Damping Properties of Bundles of Rods

PERIODICAL: Energomashinostroyeniye, 1961, No. 2, pp. 21-23

TEXT: Hitherto the "lacing" wires on turbine blades have been located mainly in accordance with considerations of the frequency properties of the groups of blades. By appropriate location of the wire it was possible to reduce or prevent vibrations between blades, to reduce the amplitude of harmonic vibrations and to influence to some extent the natural frequency of the groups. However, correct positioning of the wire can have considerable effect on the damping properties and this should be allowed for in designing groups of blades with lacing wires. This article gives the results of a theoretical and experimental study of the question. The theoretical study is based on the assumption that energy dissipation in the group increases with increase in the stress in bending the blades and wire, which is confirmed by experiments. It accordingly suffices to follow the changes in

Card 1/4

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The Influence of the Arrangement of the Binding Wire on the Damping Properties of Bundles of Rods

stress in the wire when it is installed in different positions for given values of stress in the blades. The blades are considered to be of constant section, fixed at one end and free at the other, and the wire is installed at different distances from the blade root. A simple expression is written for the stress in the wire and the following expression is derived for the position of the wire at which the stress in it is maximum

$2kx^3 - 3(k - 1)x^2 - 6x + 3 = 0$, where k is the ratio of the rigidity of the wire to that of the blade. In tests with wires of 3 mm and 5 mm diameter, the respective values of k were 1.41 and 2.58. The tests were made on groups of six flat rods of constant cross-section of 30 x 4 mm, 295 mm long, with a pitch of 21 mm and firmly fixed at the base. Each rod had five holes for fixing lacing wires at different distances from the base; a single wire was used in each test. Twenty-one strain gauges were attached to the rods. Curves are plotted of logarithmic decrement of oscillations with the wire in place. The tests show that the damping

Card 2/4

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E194/E255

The Influence of the Arrangement of the Binding Wire on the Damping Properties of Bundles of Rods

properties of the groups depend very much on the location of the wire. This was most clearly demonstrated with a wire of 5 mm diameter. The maximum dissipation of energy occurs when the wire is near the middle of the rods. The curve is approximately symmetrical and the minimum decrement, which is obtained with the wire near the tip of the rods, is practically the same as when no wire is present. Special tests were made to ascertain whether there was any distortion of the decrement at frequencies near the natural frequency of oscillation of the plate to which the blades were fixed. It was found that there was no such effect within the range studied. Thus, it is considered as established that when the lacing wire is fitted at different levels there is a maximum in the curve of vibration decrement. The position at which the decrement is a maximum coincides with the position of maximum stress of the binding wire in bending. A study was also made of the influence of the wire position on the frequency of vibration of the group of rods. The maximum frequency occurred with the

Card 3/4

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E194/E255

The Influence of the Arrangement of the Binding Wire on the Damping Properties of Bundles of Rods

wire at a distance of about 0.7 of the height from the base: this is in good agreement with calculated values. There are 4 figures and 1 Soviet reference.

Card 4/4

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', R.R., inzh.

Number of blades of the turboexpander runner. Kislorod 12 no.4:15-22 '59. (MIRA 12:12)
(Liquid air)
(Refrigeration and refrigerating machinery)

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

AUTHOR: Zaydel', R. R., Engineer

TITLE: Reference Materials. Centripetal Turbo-engines Driven by Compressed Gas for Air Separation

PERIODICAL: Kislorod, 1959, Nr 5, Rear Cover (USSR)

ABSTRACT: The indices of the following types of turboengines driven by compressed gas are listed in a table: TDR-14, TDR-15000, TDR-15, TDR-5, TDR-3, TDR-16, KT-3600, TD-3100-6/1, TD-3300-16/6. Of the indides, the following are given: number of drawing of the VNIIKIMASh, the gas used, gas consumption in kg/hour, temperature of the gas in K° at the intake, gas pressure at intake and outlet (absolute pressure in atmospheres), number of revolutions per minute of the driving wheel, the indices of the electrical braking generator, namely the power in kw, tension in volts, and r.p.m. Furthermore, the diameters of the intake and outlet pipes, dimensions and weight of the entire unit, and peculiarities in the design of the several types were given. There is 1 table.

Card 1/1

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SOV/67-59-6-4/26

14(1)

AUTHOR: Zaydel', R. R., Engineer

TITLE: Expansion Turbines of Air-fractionating Plants

PERIODICAL: Kislorod, 1959, Nr 6, pp 29 - 37 (USSR)

ABSTRACT: In the present paper, some expansion turbines are described. They are of simplest single-stage construction due to construction difficulties caused by low temperatures. The first turbine was a single-stage axial-flow turbine. It still had a very small efficiency and considerable shortcomings. Zerkovitz (Ref 3) was the first to improve this state by introducing a centripetal turbine. It still had a very small radial ratio (ratio between exterior diameter and rotor diameter) and thus a small efficiency. A considerable improvement was made by Academician P. L. Kapitsa (Refs 2,5) who introduced the slow-running centripetal turbine with a high radial ratio which corresponded to the type of hydraulic turbines. It found wide-spread application at home and abroad owing to its simple construction and high efficiency. Besides, the latter expansion turbine is described in detail as follows: efficiency, radial coefficient, reactivity coefficient, speed, as well as

Card 1/2

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interrelations of these values. Further, the assembly of the turbine, deceleration (Fig 5), and the main construction parts are described, and represented in figures (working ring, turbine blade, nozzles of various construction possibilities). Materials used for the manufacture of these parts are given. Control is generally effected by means of a throttle valve. Strict observance for the prevention of deformations of the body which may be attained by minimum clearances, further a most careful carrying out of the assembly and connection of single parts (accurate centering), and perfect cleanliness of the parts to be assembled from dust and ice, are pointed out as characteristics of mounting and operation. There are 9 figures and 11 references, 6 of which are Soviet.

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ZAYDEL', Rafail Ruvimovich; BUTKEVICH, K.S., dotsent, retsenzent; BYSTRITSKAYA, V.V., inzh., red.; SAVEL'YEV, Ye.Ya., red.izd-va; EL'KIND, V.D., tekhn.red.

[Turbine expanders for oxygen plants] Turbodetandery kislorodnykh ustanovok. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit.lit-ry, 1960. 175 p. (MIRA 14:1)
(Oxygen) (Refrigeration and refrigerating machinery)

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"APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0

ZAYDEL', S.M.

Investigation of the operational stability of a pulse generator. Radiotekhnika 16 no.1:52-58 Ja '61. (MIRA 14:2)

1. Deystvitel'nyy chlen Nauchno-tekhnicheskogo obshchestva radiotekhniki i elektrosvyazi im. A.S. Popova.
(Oscillators, Electric)

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9.3220

AUTHOR: Zaydel', S. M., Member of the Society

TITLE: Study of the Stability of a Pulse Generator

PERIODICAL: Radiotekhnika, 1961, Vol. 16, No. 1, pp. 52 - 58

TEXT: The author bases his investigation on studies of M. A. Ayzerman, L. S. Gol'dfarb, and V. A. Taft, and represents an easy to do analysis of the stability for a periodically acting nonlinear system which consists of a reaction-free pulse generator and linear and nonlinear control circuits and frequency-selective parts. The balance of a pulse-generating system (Fig.2) having a pulse generator 1, a linear amplifier 2, and a nonlinear pulse former, load and control part 3 is given by the following expressions: $D(p)x = -K(p)v$ (1), $v = Y + S\cos\omega t$ (2), and $Y = F(x)$ (3). If small balance disturbances are expressed by $x(t) = X_0(t) + x$ (5), the expression $D(p)[X_0 + x] = -K(p)[F(X_0 + x) + S\cos\omega t]$ is obtained from (1)-(3) and (5). This relation can be transformed into $D(p)x + K(p)\frac{\partial F}{\partial X}x = 0$ (8)

Card 1/3

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by a first-order Taylor approximation for F. Now it is possible to apply the Lyapunov theorem as a stability criterion; assuming frequency-limiting linear system parts, $\frac{\partial F}{\partial X}$ is expanded in the series

$$\left.\frac{\partial F}{\partial X}\right|_{x=X_0(t)} = A_0 + A_0 m_1 \cos(\Omega t + \varphi_1) + A_0 m_2 \cos(2\Omega t + \varphi_2) + \dots .$$

$x(t) = \mathrm{Re} \sum_{k=-N}^{N} X_k \exp[\lambda t + i(k\Omega t + \alpha_N)]$ represents a solution, where λ_i are eigenvalues and X_k unknown amplitude values. Substituting this solution in (8) yields 2N + 1 solutions of the form

$$\left\{\left[A_0 K(p) + D(p)\right]\exp(\lambda t + ik\Omega t)\right\}\dot{X}_k + \left\{\frac{1}{2} A_0 m_1 e^{i\varphi_1} K(p)\exp(\lambda t + ik\Omega t)\right\}\dot{X}_{k-1}$$
$$+ \left\{\frac{1}{2} A_0 m_1 \exp(-i\varphi_1) K(p)\cdot\exp(\lambda t + ik\Omega t)\right\}\dot{X}_{k+1} + \dots\dots = 0, \text{ with}$$

$\dot{X}_k = X_k \exp(j\alpha_k)$. The characteristic equation for λ_i is obtained by setting the coefficient determinant of this set of equations equal to zero. The values thus obtained for λ_i make it possible to evaluate the

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Study of the Stability of a Pulse Generator

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stability properties of the system according to the inequalities $Re[\lambda_1] < 0$ or $Re[\lambda_1] > 0$. The characteristic equation for systems transmitting very limited harmonics through their linear parts is very simple. A numerical example for such a special case is calculated, the characteristic equation being evaluated by means of the Mikhaylov criterion. There are 4 figures and 4 Soviet references.

SUBMITTED: December 4, 1959 (initially), July 4, 1960 (after revision)

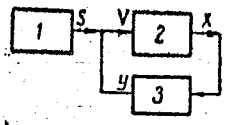

Рис. 2 (Fig. 2)

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ZAYDEL S. M.

В. А. Грабовская,
Е. И. Каменев,
Н. И. Лебедев,
А. Г. Филиппов,
Ю. И. Фаст

Комплекс полупроводниковых элементов и узлов цифровой вычислительной машины.

10 июня
(с 18 до 22 часов)

А. А. Коларов

Методы расчета устройств на ферритовых сердечниках.

Ю. И. Шамаев

Основы расчета импульсных схем, содержащих ферромагнитные сердечники в прямоугольной петлей гистерезиса.

Н. В. Карапаев,
В. С. Гаврилов

Быстродействующие магнитные элементы дрессельного тока.

А. А. Гоппе

О расчете схем на безнакальных тиратронах.

11 июня
(с 10 до 16 часов)

[illegible]

Состояние на ферритрансисторных ячейках.

В. А. Мамаев

Применение [illegible] ферритовых [illegible] [illegible]

Н. В. Карапаев

Магнитный формирователь импульсов для питания магнитных элементов.

С. И. Зайцев,
В. А. [illegible]

Трехфазный импульсный источник тактовых сигналов для вычислительной машины на ферритах.

11 июня
(с 18 до 22 часов)

В. И. Шевер

Запоминающие трубки для цифровых машин дистрибутивного счета.

report submitted for the Centennial Meeting of the Scientific Technological Society of Radio Engineering and Electrical Communications im. A. S. Popov (VNORIE), Moscow, 8-12 June. 1959

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LARINA, V.S.; ZAYDEL', T.Ya.

Experience in treating patients with peptic ulcer at the polyclinical dispensary level. Sov.med. 23 no.7:118-121 Jl '59. (MIRA 12:11)

1. Iz gospital'noy terapevticheskoy kliniki Saratovskogo meditsinskogo instituta (dir. - prof.L.S.Shvarts) i 1-y klinicheskoy bol'nitsy Saratova (glavnyy vrach N.N.Filippenko).
(PEPTIC ULCER therapy)

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IVANOVA, K.I.; ZAYDEL', S.P.

Treatment in specialized créches of groups of infants who have had poliomyelitis. Ortop.,travm.i protez. no.2:47-51 '62. (MIRA 15:3)

1. Iz Gosudarstvennogo nauchno-issledovatel'skogo detskogo ortopedicheskogo instituta im. G.I. Turnera (dir. - prof. M.N. Goncharova).
(DAY NURSERIES) (POLIOMYELITIS)

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VAL'TER, R. [Walter, R.]; ZAYDEL', V. [Seidel, W.]

Problems and methods of using punch-cards in computers for the documentation of literature on economics. NTI no.2:18-21 '65. (MIRA 18:6)

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ZAYDEL, VIKTOR ARNOL'DOVICH.

Montazh kotel'nogo oborudovaniia; uchebnik dlia remesl. i zheleznodor. uchilishch. Moskva Gosenergoizdat, 1943. 263p.

(Assemblage of boiler equipment.

DLC: Unclass.

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ZAYDEL', V. A.

"Mounting the Boiler Installations of Electric Power Stations." Sub 23 Jun 47, Moscow Order of the Labor Red Banner Higher Technical School imeni N.E. Bauman

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ZAYDEL, V. A. PA 32/49T30

USSR/Engineering Jun 48
Power Plants - Installation
Efficiency, Industrial

"Selecting the Most Suitable Assembly Units for Boiler Units," V. A. Zaydel', Engr, 9 pp

"Elek Stants" Vol XIX, No 6

Treats under: optimum constructional appearance of units and their weight characteristics, rational use of lifting mechanisms, alteration of expenditure on labor and cost of erection, cutting down erection time, and conclusions. Includes six diagrams.

FDB 32/49T30

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ZAYDEL', V. A. Engineer 600

USSR (600)

"Selection of Optimum Characteristics for Boiler-Installing Equipment and Crane Lifting Capacity." Thesis for degree of Cand. Technical Sci. Sub 17 Feb 50, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov

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"The Installation of Boiler Equipment" (Montazh kotel'nogo oborudovaniya), Gosenergoizdat, Moscow-Leningrad, 1949, 228 pp., 7 rubles, 45 kopeks.

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ZAYDEL', V. A.

USSR/Electricity - Power, Steam Construction, Power Station May 50

"Basic Principles of Rapid Construction of Steam Power Stations" A. A. Borowoy, Engr. V. A. Zaydel', Cand Tech Sci, 6 pp

"Elek Stants" No 5

Discusses preparations for building, provision of plans, time required, preliminary work, construction of dwellings, construction of permanent industrial structures, organization of building site, and material and engineering supplies. Editor invites readers' views.

PA 161T26

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ZAYDEL', V. A. 600

USSR (600)

Boilers

Review of V. A. Larichev's book, "Quality Steels for Present Day Boilers," Elek. Sta., No 1, 1952

SO: Monthly List of Russian Accessions, Library of Congress, March 1952, UNCL

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1. ZAYDEL', V. A.

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7. Duration of construction of heat-generated electric power stations. Elek. sta. 23 No. 9, 1952.

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ZAIDEL', V. A.

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ZAYDEL, V M

GRIGOR'YEV, T.Ye., redaktor; ZAYDEL', V.A., redaktor; LARIONOV, G.Ye., tekhnicheskiy redaktor

[Handbook for the installation of heat engines] Spravochnik po montazhu teplomekhanicheskogo oborudovaniia. Pod obshchei red. T.E.Grigor'eva i V.A.Zaidelia. Moskva, Gos. energ. izd-vo 1953. 503 p. (MLRA 7:10)

(Heat engines)

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ZAYDEL', V.A.

GINZBURG-SHIK, Lev Davidovich; ZAYDEL', V.A., redaktor; FRIDKIN, A.M., tekhnicheskiy redaktor

[Tackle and tackle operations in assembling heat power equipment at an electric power station] Takelazh i takelazhnye raboty pri montazhe teplomekhanicheskogo oborudovaniia elektrostantsii. Moskva, Gos. energ. izd-vo, 1955. 231 p. (MLRA 8:8)

(Hoisting machinery) (Electric power plants)

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ZAYDEL', V.A., kandidat tekhnicheskikh nauk.

Length of the preparatory period in the construction of thermal power plants. Elek.sta. 27 no.11:26-30 N '56. (MLRA 10:1)
(Electric power plants) (Building)

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ZAYDEL', V.A., kand.tekhn.nauk

Effect of the outdoor installation of equipment on the increase of the operating expenditures. Elek.sta. 33 no.22:36-40 D '62. (MIRA 16:2)

(Electric power plants)

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Economic efficiency of the construction of outdoor-type thermal electric power plants in the U.S.S.R. Energ.stroi. no.30:39-50 '62. (MIRA 16:2)

1. Vsesoyuznyy zaochnyy politekhnicheskiy institut.
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ZAYDEL', Viktor Arnol'dovich, dots.; SAPOZHNIKOV, Fedor Vasil'yevich, inzh.; FINOGENOV, Yakov Ivanovich, inzh.; BELINSKIY, S.Ya., kand. tekhn.nauk, dots., red.

[Principles of the construction and installation of thermal electric-power plants; general problems of organization and mechanization] Osnovy stroitel'stva i montazha teplovykh elektrostantsii; obshchie voprosy organizatsii i mekhanizatsii. Moskva, Energiia, 1964. 255 p. (MIRA 17:10)

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ZAYDEL, V.A., kand. tekhn. nauk

Methodology for determining losses suffered by the national economy due to delays in the construction of thermal electric power plants. Teploenergetika 12 no.6:92-93 Je '65. (MIRA 18:9)

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ZAYDEL', V.A., kand. tekhn. nauk; TURCHIN, N.Ya., inzh.; LATYSH, D.I., inzh.

"Design and construction of thermal electric power plants" by I.P. Kuptsov, IU.R. Ioffe. Reviewed by V.A. Zaidel', N.IA. Turchin, D.I. Latysh. Elek. sta. 34 no.7:91-95 Jl '63. (MIRA 16:8)

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ZAYDEL'MAN, F.F.; OGLEZNEV, A.K.

Investigation of the formation of gley in floodland soils of the non-Chernozem zone. Pochvovedenie no.1:44-52 Ja '63. (MIRA 16:2)

1. Respublikanskiy gosudarstvennyy institut po proyektirovaniyu vodokhozyaystvennogo i meliorativnogo stroitel'stva RSFSR.
(Moskva Valley—Alluvial lands)
(Moskva Valley—Clay)

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ZAYDEL'MAN, F.R.

Water balance and physical properties of swampy floodland soils in the southern part of the taiga zone. Pochvovedenie no.4:5-19 Ap '63. (MIRA 16:5)

1. Respublikanskiy gosudarstvennyy institut po proyektirovaniyu vodokhozyaystvennogo i meliorativnogo stroitel'stva RSFSR.
(Moskva Valley--Soil physics)
(Moskva Valley--Soil moisture)

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ZAYDEL', V.A., kand.tekhn.nauk, dotsent

"Design and construction of thermal electric plants" by I.L. Kuptsov, IU.R.Ioffe. Reviewed by V.A.Zaidel'. Prom. stroi. 40 [i.e. 41], no.5:56-3 of cover My '63. (MIRA 16:5)
(Electric power plants—Design and construction)
(Kuptsov, I.L.) (Ioffe, IU.R.)

APPROVED FOR RELEASE: 03/15/2001 CIA-RDP86-00513R001964020018-0"

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ZAYDEL', V.A., kand.tekhn.nauk

Best length of time for the construction of thermal electric stations. Energ. stroi. no.20:106-113 '61. (MIRA 15:1)
(Electric power plants)

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Time spent in constructing thermal power stations in Russia and in foreign countries. Energ. stroi. no.15:43-47 '59. (MIRA 13:8)

(Electric power stations)

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ZAYDEL', V.A., kand.tekhn.nauk.

Some thoughts on the standard projects for state regional 1,200 megawatt electric power plants. Elek. sta. 29 no.7:32-40 Jl '58. (MIRA 11:10)

(Electric power plants)

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VINNITSKIY, David Yakovlevich; GINZBURG-SHIK, Lev Davidovich; ZAYDEL', Viktor Arnol'dovich, kand. tekhn. nauk; ZAKHARASHEVICH, Anatoliy Aleksandrovich; KAPRALOV, Viktor Aleksandrovich; SOLOV'YEV, Vladimir Borisovich; CHULKOV, Sergey Pavlovich; YAKOBSON, Sergey Sergeyevich; KORIKOVSKIY, I.K., red.; ANTIKAYN, P.A., red.; VORONIN, K.P., tekhn. red.

[Handbook for the installation of heat engines and related equipment] Spravochnik po montazhu teplomekhanicheskogo oborudovaniia. Izd.2., perer. Moskva, Gos. energ. izd-vo, 1960. 560 p. (MIRA 14:8)
(Heat engines)

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ZAYDEL', Viktor Arnol'dovich; kand. tekhn. nauk; MAKSIMOV, A.A., red.; FRIDKIN, A.M., tekhn. red.

[Installing steam boilers] Montazh kotel'nogo oborudovaniia. Izd. 4., perer. i dop. Moskva, Gos. energ. izd-vo, 1958. 350 p. (MIRA 11:10)
(Boilers)

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