ARKHANGEL'SKIY, Yu.A. (Moskva)

On single integrals in the problem concerning the motion of a solid body in a Newtonian field of force. Prikl. mat. i mekh. 26 no.3:568-570 My-Je '62. (MIRA 16:5)
(Integrals) (Motion)

S/040/62/026/006/010/015
D234/D308

AUTHOR: Arkhangel'skiy, Yu.A. (Moscow)

TITLE: A Poincaré theorem concerning the problem of motion of a rigid body in Newton's force field

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 6, 1962, 1116 - 1117

TEXT: The author proves that the system

$$A\frac{dp}{dt}+(C-B)qr=y'_0\gamma''-z'_0\gamma'+\alpha(C-B)\gamma'\gamma''$$
$$B\frac{dq}{dt}+(A-C)pr=z'_0\gamma-x'_0\gamma''+\alpha(A-C)\gamma''\gamma \qquad (1.1)$$
$$C\frac{dr}{dt}+(B-A)pq=x'_0\gamma'-y'_0\gamma+\alpha(B-A)\gamma\gamma'$$
$$\frac{d\gamma}{dt}=r\gamma'-q\gamma'', \quad \frac{d\gamma'}{dt}=p\gamma''-r\gamma, \quad \frac{d\gamma''}{dt}=q\gamma-p\gamma'$$
$$\left(x'_0=Mgx_0,\ y'_0=Mgy_0,\ z'_0=Mgz_0,\ \alpha=\frac{3g}{l}\right)$$

Card 1/2

ARKHANGEL'SKIY, Yuriy Aleksandrovich; BELOTSERKOVSKAYA, S.I., red.; GALAKTIONOVA, Ye.N., tekhn. red.

[Safety measures in the production of ethyl gasoline] Tekhnika bezopasnosti pri rabote s etilirovannym benzinom. Izd.3, dop. Moskva, Avtotransizdat, 1963. 33 p. (MIRA 16:7)

(Gasoline--Safety measures)

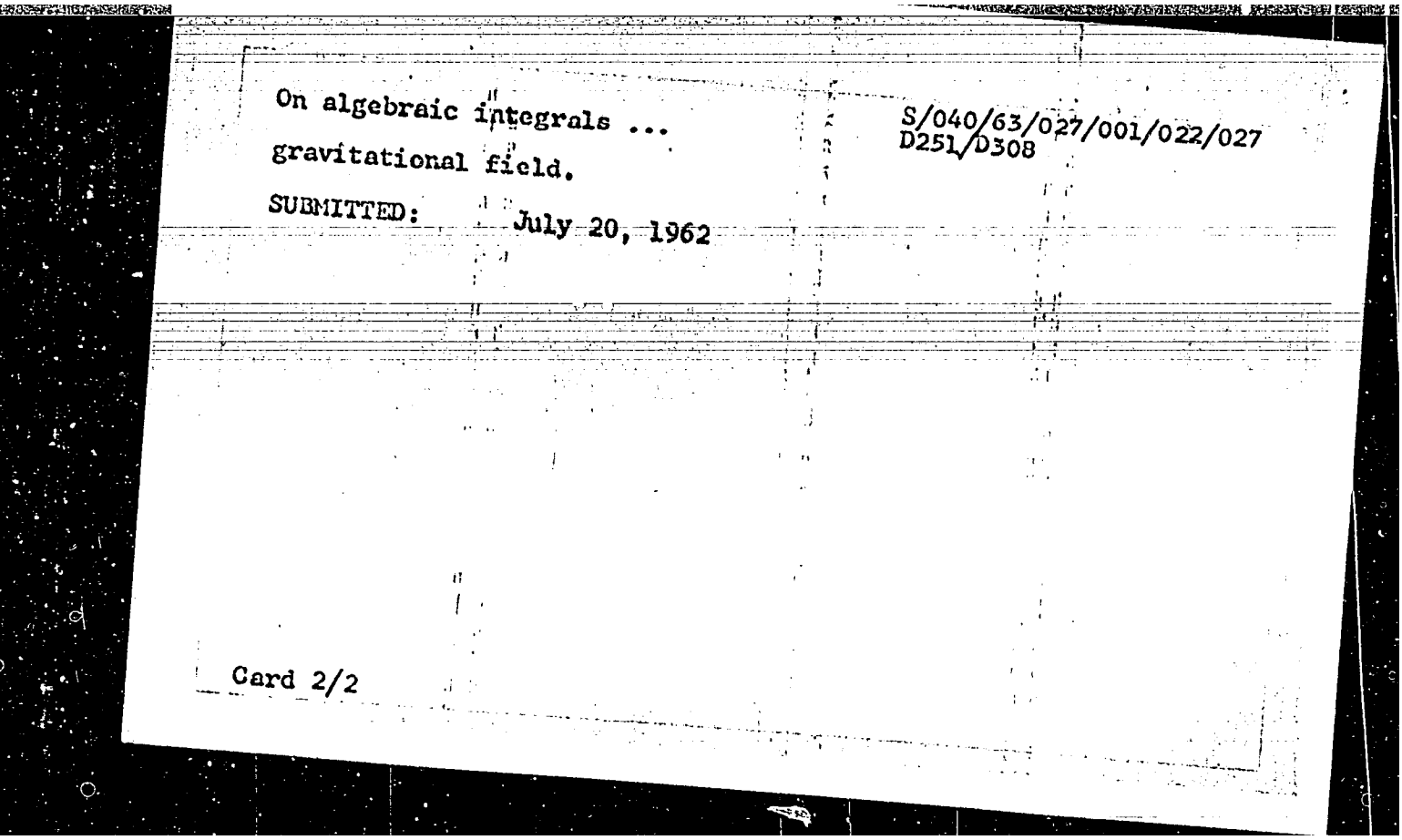
S/040/63/027/001/022/027
D251/D308

AUTHOR: Arkhangel'skiy, Yu.A. (Moscow)

TITLE: On algebraic integrals in the problem of the motion of a rigid body in a Newtonian force field

PERIODICAL: Prikladnaya matematika i mekhanika, v. 27, no. 1, 1963, 171-175

TEXT: V.V. Beletskiy (DAN SSSR, 1957, v. 113, no. 2) showed that the approximate equations of motion of a rigid body about a fixed point as above have three independent algebraic first integrals: the vis viva integral, the integral of areas and the trivial integral. Since the approximate equations of motion do not contain the time explicitly and have the last Jacobi multiplier equal to unity, it is evident that the existence of a fourth algebraic integral would permit the problem to be reduced to a quadrature. It is shown that such a fourth integral exists only in the cases analogous to Euler's case and Lagrange's case in the theory of the motion of a rigid body about a fixed point in a homogeneous



On algebraic integrals ...
gravitational field.

S/040/63/027/001/022/027
D251/D308

SUBMITTED: July 20, 1962

Card 2/2

S/040/63/027/002/016/019
D251/D308

AUTHOR: Arkhangel'skiy, Yu. A. (Moscow)

TITLE: Periodic solutions of quasilinear autonomous systems possessing first integrals

PERIODICAL: Prikladnaya matematika i mekhanika, v. 27, no. 2, 1963, 369-372

TEXT: The author considers the quasilinear autonomous system with n degrees of freedom

$$\sum_{k=1}^{n} (a_{ik}\ddot{x}_k + c_{ik}x_k) = \mu f_i(x_1,\ldots,x_n,\dot{x}_1,\ldots\dot{x}_n,\mu) \quad (i = 1,\ldots,n) \tag{1.1}$$

where f_i are analytic functions of their arguments in some domain,

Card 1/2

Periodic solutions of ...

μ is a small parameter and all roots of the frequency equation

$$\Delta(\omega^2) = \left| c_{ik} - \omega^2 a_{ik} \right| = 0$$

are different and commensurate. The solution will possess n frequencies $\omega_1, \ldots \omega_n$ and will be periodic with some period T_0. Three groups of conditions of periodicity are established, and the parameters of the problem may be evaluated from these. It is supposed that (1.1) possesses 1(2n) independent first integrals. Following Poincaré's method, these integrals are expressed as finite-difference equations, and the problem of determining the conditions of periodicity is reduced to the problem of ascertaining the properties of a Jacobian.

SUBMITTED: November 1, 1962

Card 2/2

ARKHANGEL'SKIY, Yu.A. (Moskva)

Algebraic and univalent integrals in the problem of motion of a solid body in a Newtonian force field. Prikl. mat. i mekh. 27 no. 4:697-698 Jl-Ag '63. (MIRA 16:9)
(Integrals) (Gravitation)

ARKHANGEL'SKIY, Yu.A. (Moskva)

Motion of a balanced gyroscope in a Newtonian force field. Prikl. mat. i mekh. 27 no.6:1099-1101 N-D 63. (MIRA 17:1)

ARKHANGEL'SKY, Yu.A. (Moscow)

"Motion of a heavy solid around a fixed point in the Newtonian force field"

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 January - 5 February 1964

ARKHANGEL'SKIY, Yu.A. (Moskva)

Algebraic integrals in the problem of the motion of a solid body in a Newtonian field of force. Prikl. mat. i mekh. 27 no.1:171-175 Ja-F '63. (MIRA 16:11)

ACCESSION NR: AP4015972 S/0040/63/027/005/0864/0877

AUTHOR: Arkhangel'skiy, Yu. A. (Moscow)

TITLE: Motion of a heavy solid body set into fast rotation about a fixed point

SOURCE: Prikl. matem. i mekhan., v. 27, no. 5, 1963, 864-877

TOPIC TAGS: fast rotation, fixed point, equation of motion, heavy solid body, angular velocity, initial condition, small parameter, periodic solution, regular precession

ABSTRACT: Motion of a heavy solid body about a fixed point which has been imparted with large initial angular velocity has been studied in the Goryachev-Chaply*gin case. There are certain restrictions on the center of gravity, on the moments of inertia, and on the initial conditions. Using the small parameter method, the author investigates the periodic solution of the equations of motion of a heavy solid body about a fixed point which has been actuated into fast rotation relative to one of the main axes of the ellipsoid of inertia and studies the motion of the body. In particular he shows that any solid body, for $z_0 \neq 0$ will have a pseudo-regular precession about the vertical axis already in the first approximation. Of the six initial conditions, at least four are arbitrary. Orig. art. has: 101 formulas.

Card 1/2 1

ARKHANGEL'SKIY, Yu.A. (Moskva)

Motion of the Kovalevskii gyroscope. Prikl. mat. i mekh. 28 no.3: 521-522 My-Je '64 (MIRA 17:7)

ARKHANGEL'SKIY, Yu.A. (Moskva)

Motion of a disc in a Newtonian field of forces. Prikl. mat. i mekh. 28 no.4:759-763 Jl-Ag '64 (MIRA 17:8)

SOURCE: AN SSSR. Doklady, v. 158, no. 2, 1964, 292-293

TOPIC TAGS: Euler Poisson equation, heavy body rotation, periodic solution, solid body rotation, analytical mechanics

ABSTRACT: The paper deals with the application of the Euler-Poisson equations which can be, under certain circumstances, reduced to a quasilinear autonomic system with two degrees of freedom, to the problem of a heavy body with a fixed point brought into rapid rotation about a

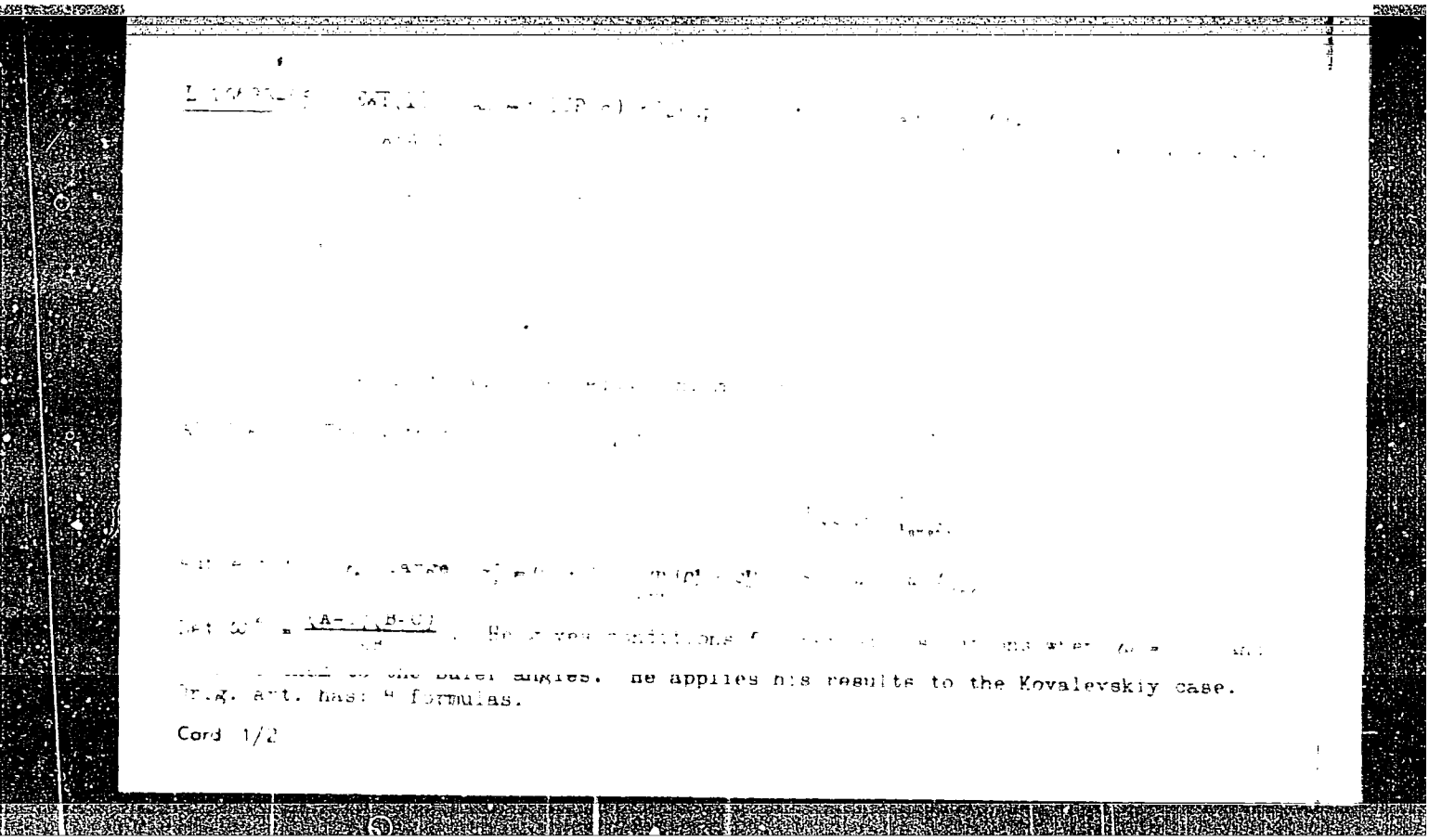
Card 1/2

L 15479-65
ACCESSION NR: AP4045623

ASSOCIATION: None

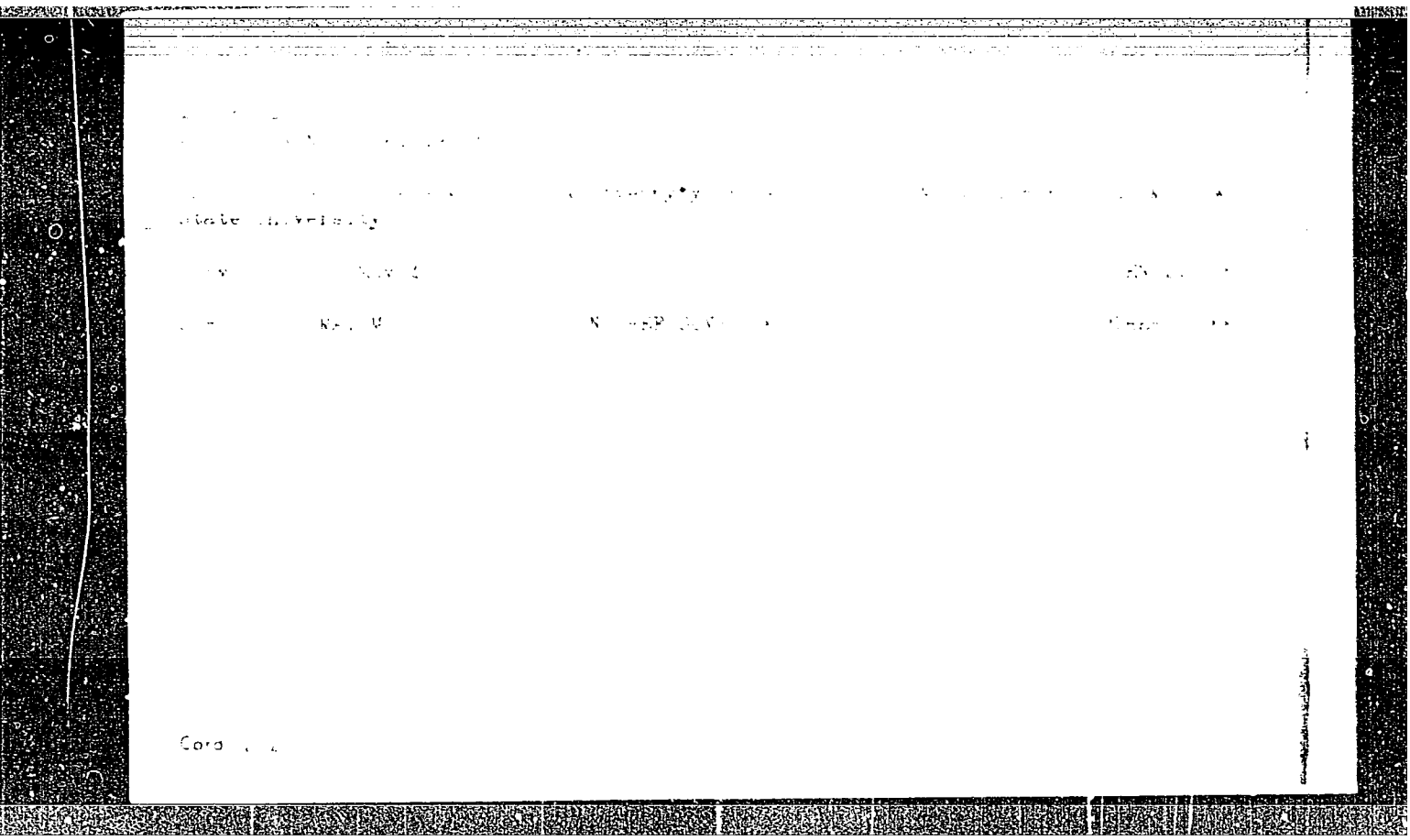
SUBMITTED: 16Apr64 ENCL: 00

SUB CODE: AC, MF NO REF SOV: 004 OTHER: 004



Orig. art. has: 4 formulas.

Card 1/2



ARKHANGEL'SKIY, Yu.B.; CHUGUYEV, G.P.

Power supply for relay systems operating on a time pace principle. Sbor. rab. po vop. elektromekh. no.9:70-79 '63. (MIRA 17:2)

ACCESSION NR: AT4015857 S/2573/63/000/009/0079/0087

AUTHOR: Arkhangel'skiy, Yu. B.

TITLE: A digital integrator with ferrite-transistor elements

SOURCE: AN SSSR. Institut elektromekhaniki. Sbornik rabot po voprosam elektromekhaniki, no. 9, 1963. Avtomatizatsiya, telemekhanizatsiya i priborostroyeniye (Automation, telemechanization and instrument manufacture), 79-87

TOPIC TAGS: astronomy, telescope, automatic control system, digital integrator, digital differential analyzer

ABSTRACT: The integrator described is part of a Digital Differential Analyzer, used for precision conversion of equatorial coordinates to azimuthal coordinates in the automatic control of astronomical instruments. The integrator works at clock frequencies of 300-500 kc and was designed at the Institut elektromekhaniki AN SSR (Institute of Electromechanics). The three-bit-input integrator consists of a bi-directional counter, a cumulative adder and the interconnecting logic circuitry. The adder logic is the same as the counter logic since a bi-directional adder is analogous to a counter with an input of -1 for all digits. The integrator is entirely constructed from the ferrite-transistor logical

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ACCESSION NR: AT4015857

elements shown in Fig. 1 of the Enclosure. The element consists of a ferrite toroidal transformer, a semiconductor triode and an emitter resistor. The same elements are used in the timing pulse generator except that the transistors are in common base configuration. The design of the ferrite-transistor elements for the clock and the integrator is given in detail. The clock pulses are 15 volts high, 1 μsec in duration and drive 20 elements. The ferrite core is a VT-1 with the following properties: change in magnetic flux during pulse duration = 0.132 gauss/cm^2, length of central magnetic field line = 0.535 cm; coefficient of magnetism reversal = 1.4 amp/cm. The clock element windings have 2-20 turns while the integrator windings have 9-22 turns. The minimum required pulse width is 0.47 μsec. and the transistor used is a P16B. The elements perform satisfactorily with 1 - sec. pulses at 0.5 duty factor, i.e. a clock frequency of 500 kc. Using a P403 transistor and a suitable ferrite core, the clock frequency can be raised to 1.2 cm. The integrator is considered very economical since it requires only 50 elements per digit and can be used in differential analyzers, interpolating systems, etc. Orig. art. 5 figures and 16 formulas.

ASSOCIATION: Institut elektromekhaniki AN SSSR (Electromechanics Institute AN SSSR)

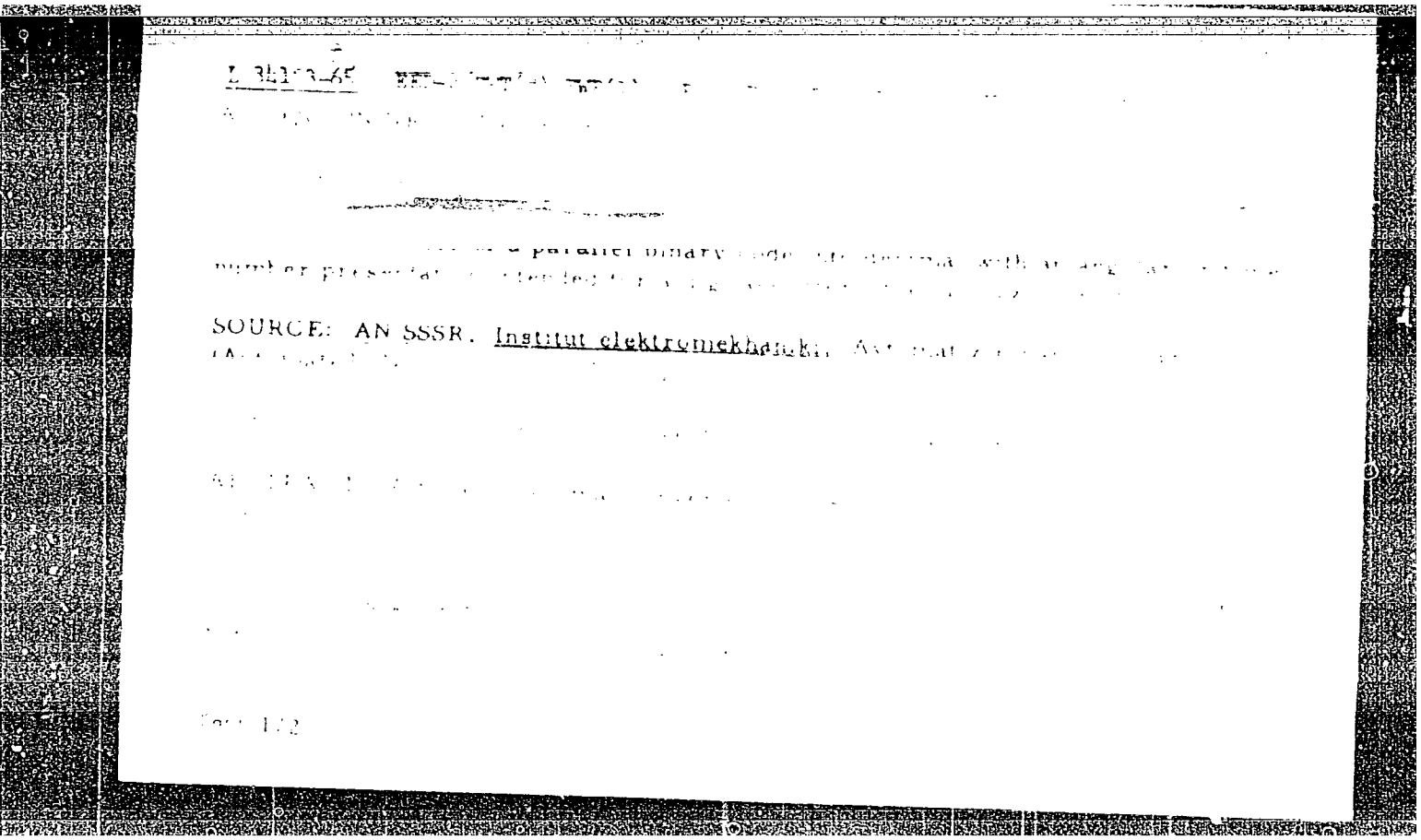
Card 2/4

ACCESSION NR: AT4015857

SUBMITTED: 00 DATE ACQ: 20Dec63 ENCL: 01

SUB CODE: AA, EC NO REF SOV: 002 OTHER: 002

Card 3/4



SOURCE: AN SSSR. Institut elektromekhaniki.

L 31153-6

ACCESSION NR: AT5003623

decimal digit and ensures high speed. Functional diagrams of the converter and principal [illegible]

ASSOCIATION: none

SUBMITTED: [illegible]

L 5178-66 FBD/EWT(1) GS/GW/WS-2
ACCESSION NR: AT5021840 UR/0000/65/000/000/0136/0144

AUTHOR: Arkhangel'skiy, Yu. B.; Stanishevskiy, I. A.

TITLE: An algorithm and a program for the specialized computer for the control of azimuthal radio telescopes

SOURCE: AN SSSR. Institut elektromekhaniki. Avtomatizirovannyy elektroprivod; sledyashchiye sistemy, upravleniye i preobrazovatel'nyye ustroystva (Automated electric drive; tracking systems, control and converter devices). Moscow, Izd-vo Nauka, 1965, 136-144

TOPIC TAGS: radio telescope, special purpose computer, computer application, computer control system, algorithm

ABSTRACT: Universal digital computers capable of controlling azimuthal telescopic devices are usually not sufficiently reliable due to the large number of components involved. Specialized computers are relatively slow (500-1000 operations per second) but can be used successfully for azimuthal control. The present article describes in detail the pertinent algorithm and the actual realization of the program on a specialized computer. The program contains about 1,000 commands and is carried out in 2 — 2.5 sec (depending on the possible inclusion of scanning). This does not cover the printing time since the printing

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L 5178-66

ACCESSION NR: AT5021840

block operates only when needed. The accuracy is within 2", which is sufficient for radio telescopic operation. Orig. art. has: 3 formulas, 3 figures, and 3 tables.

ASSOCIATION: None

SUBMITTED: 12Apr65 ENCL: 00 SUB CODE: DP, AA

NO REF SOV: 002 OTHER: 001

Card 2/2 Mrd

L 5177-66 EWT(d)/EWT(l)/EWP(v)/EWP(k)/EWP(h)/EWP(l)/EWA(h) IJP(c)
ACCESSION NR: AT5021845 TG/GS/BC UR/0000/65/000/000/0167/0173

AUTHOR: Arkhangel'skiy, Yu. B.; Zdanovich, V. V.; Chuguyev, G. P. 60 B+1

TITLE: Program logic methods for reliability improvement in digital control systems 9

SOURCE: An SSSR. Institut elektromekhaniki. 25 Avtomatizirovannyy elektroprivod; sledyashchiye sistemy, upravleniye i preobrazovatel'nyye ustroystva (Automated electric drive; tracking systems, control and converter devices). Moscow, Izd-vo Nauka, 1965, 167-173

TOPIC TAGS: random process, computer control system, digital computer, telescope, computer application, computer program logic, automatic control system 14

ABSTRACT: Computer errors are essentially random in character, and the present authors discuss them from the point of view of the theory of random processes. For the control of information processed by computers, they propose program logic control based on the redundancy of the original and intermediate information. This differs from other cases encountered in various branches of technology where the computer control may be based on comparisons with appropriate standards. The redundancy leads to various control relationships connecting the calculated quantities which may then be

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5177-66

ACCESSION NR: AT5021845

verified at the end of each computational cycle. This computer self-control is applied to the specific case of telescope control. The authors give a complete block diagram of the program logic and test control appropriate for this type of azimuthal rotation control. Orig. art. has: 11 formulas and 1 figure.

ASSOCIATION: None

SUMBITTED: 12Apr65

ENCL: 00 SUB CODE: DP, IE

NO REF SOV: 004

OTHER: 001

Card 2/2 mld

GERSHGORN, M.A.; SVIRIDENKO, F.F.; KAZARNOVSKIY, D.S.; KRAVTSOVA, I.P.; POPOVA, A.N.; FRADINA, M.G.; Prinimali uchastiye: LUKASHOV, G.G.; RUDOL'SKIY, N.L.; SIEPKANEV, N.P.; FLISKANOVSKIY, S.T.; GORBANEV, Ya.S.; BUL'SKIY, M.T. [deceased]; ARKHANGEL'SKIY, Yu.N.; SHAROV, B.A.; VISTOROVSKIY, N.T.; RAKHANSKIY, B.I.; SAPOZHKOV, V.Ye.; RYABININ, N.G.; KARAKULINA, R.R.; FADEYEVA, A.M.; ZVEREV, D.A.

Improving the production of high-strength rails by alloying them with granulated ferrochromium in the ladle. Stal' 25 no.5:408-411 My '65. (MIRA 18:6)

1. Ukrainskiy nauchno-issledovatel'skiy institut metallov i zavod "Azovstal'".

LEPORSKIY, V.V.; SLEPKANEV, P.N.; ARKHANGEL'SKIY, Yu.N.; PODOL'SKAYA, G.A.; GLINKOV, G.M.; KAPUSTIN, Ye.A.; KALOSHIN, N.A.; KRIVENKO, P.T.

Operation of large tilting open-hearth furnaces with natural gas. Stal' 21 no.10:883-889 O '61. (MIRA 14:10)

1. Zavod "Azovstal'" i Zhdanovskiy metallurgicheskiy institut.
(Open-hearth furnaces)

ARKHANGEL'SKIY, Yu. S.

Use of wear resistant beaters in shaft mills., Rab. energ., 2, no. 3, 1952.

MLRA, May 1952

ALEKSEL'SKIY, Yu.S., inzhener.

Improving the quality of welded joints of water economizer tubes. Energetik 1 no.2:23-25 Jl '53. (MLRA 6:8)
(Steam boilers)

ARKHANGEL'SKIY, Yu.S.; SHTYROV, A.I.

Calculation of the noise factor of an unmatched microwave amplifier. Radiotekh. i elektron. 10 no.12:2254-2257 D '65. (MIRA 19:1)

1. Submitted February 8, 1965.

USHAKOV, G.N.; ARKHANGEL'SKIY, Yu.V., red.; LARIONOV, G.Ye., tekhn.red.

[First atomic power plant; experience of construction and operation] Pervaia atomnaia elektrostantsiia; opyt stroitel'stva i ekspluatatsii. Moskva, Gos.energ.izd-vo, 1959. 223 p. (MIRA 12:12)

(Atomic power plants)

POPOV, A.F.; ARKHANGEL'SKIY, Yu.V., red.; LARIONOV, G.Ye., tekhn. red.

[Nuclear reactor control systems for atomic power plants] Sistemy upravleniia i kontrolia iadernykh reaktorov atomnykh elektrostantsii. Moskva, Gos.energ.izd-vo, 1961. 215 p. (MIRA 14:12)
(Nuclear reactors) (Atomic power plants)

SARKISOV, S.A., red.; KUKUYEV, L.A., red.; POLYAKOV, G.I., red.; PREOBRAZHENSKAYA, N.S., red.; STANKEVICH, I.A., red.; TROFIMOV, L.G., red.; ARKHANGEL'SKIY, Yu.V., red.; LYUDKOVSKAYA, N.I., tekhn. red.

[Structure and function of the analysors of man in antogenesis] Struktura i funktsiia analizatorov cheloveka v ontogeneze; trudy. Pod obshchei red. S.A.Sarkisova. Moskva, Medgiz, 1961. 296 p. (MIRA 15:12)

1. Rasshirennaya nauchnaya konferentsiya instituta mozga, 1959. 2. Deystvitel'nyy chlen Akademii meditsinskikh nauk SSSR (for Sarkisov). 3. Institut mozga Akademii medtisinskikh nauk SSSR, Moskva (for Polyakov, Kukuyev).
(SENSE-ORGANS) (ONTOGENY)

LYUSH, Dimitriy Vasil'yevich; NIKOLAYEV, Boris Nikolayevich; KORSUNENKO, A.A., inzh., retsenzent; ARKHANGEL'SKIY, Yu.V., inzh., retsenzent; SIVINTSEV, Yu.V., kand. tekhn. nauk, red; VLASOVA, Z.V., red.; SHISHKOVA, L.M., tekhn. red.

[Dosimetric control on atomic ships] Dozimetricheskii kontrol' na atomnykh sudakh. Pod red. Iu.V.Sivintseva. Leningrad, Sudpromgiz, 1962. 130 p. (MIRA 15:6)
(Atomic ships—Safety measures)
(Radiation—Dosage)

SARKISOV, S.A., prof., red.; ADRIANOV, O.S., red.; KRYZHANOVSKIY, R.N., red.; PARIN, V.V., red.; POLYAKOV, G.I., red.; POPOVA, Ye.N., red.; PORTUGALOV, V.V., red.; RABINOVICH, M.Ya., red.; TROFIMOV, L.G[deceased], red.; ARKHANGEL'SKIY, Yu.V., red.

[Structure and function of the nervous system; transactions of a scientific conference, December 10 - 14, 1960] Struktura i funktsiia nervnoi sistemy; trudy nauchnoi konferentsii (10-14 dekabria 1960 g.) Moskva, Medgiz, 1962. 358 p. (MIRA 17:12)

1. Deystvitel'nyy chlen AMN SSSR (for Sarkisov).

MOROKHOV, I. D.; KAMYANITSKII, V. S.; ARKHANGELSKIY, Yu. V.

"International cooperation in the development of nuclear reactor projects."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

MOROKHOV. I.D.; KANDARITSKIY, V.S. [deceased]; ARKHANGEL'SKIY, Yu.V.

International cooperation and the design of nuclear reactors.
Atom. energ. 17 no.4:252-258 O '64. (MIRA 17:10)

ARKHANGORODSKIY, A., kandidat tekhnicheskikh nauk, dotsent.

Approximate relationships between the component elements of ribbed strip profile. Mor.i rech.flot 13 no.6:24-26 O '53. (MLRA 6:10)
(Shipbuilding)

ARKHANGORODSKIY, A. G.

Some Questions in the Planning of Bulkheads

The author discusses the question of choosing the most suitable kind of steel for the bulkheads of ships and also for intermediate decks and platforms whose permanent dimensions are not determined from conditions of the general stability and strength of the hull. He presents a formula for determining the proper distance between the supports of the bulkheads. (RZhMekh, No. 6, 1955) Tr. Nikolayevsk. Korablestroit. in-ta, No. 7, 1954, 33-48.

SO: Sum. No. 744, 8 Dec 55 - Supplementary Survey of Soviet Scientific Abstracts (17)

ARKHANGORODSKIY, A., dotsent, kandidat tekhnicheskikh nauk.

Requirements for high-strength steel used in ship hulls. Mor.i rech. flot 14 no.12:23-26 D '54. (MLRA 8:1)
(Hulls (Naval architecture) (Steel--Specifications)

ARKHANGORODSKIY, A.G., kandidat tekhnicheskikh nauk.

Some problems of reducing the weight of freighter deck platings.
Trudy VNITOSS 6 no.2:3-48 '55. (MLRA 10:5)
(Hulls (Naval architecture) (Plates, Iron and steel)

ARKHANGORODSKIY, Aleksandr Grigor'yevich, kandidat tekhnicheskikh nauk; CHERNYSHEV, Oleg Leont'yevich, inzhener; BELEN'KIY, Leonid Mikhaylovich, inzhener; BRYANTSEVA, V.P., inzhener, vedushchiy redaktor; ZAYTSEV, G.Z., inzhener, redaktor; POLYAKOV, V.A., tekhnicheskiy redaktor

[Instruments for disclosing static indeterminateness of girders] Pribory dlia raskrytiia staticheskoi neopredelimosti balok. Moskva, Akad.nauk SSSR, 1956. 13 p. (Pribory i stendy. Tema 2, no.P-56-525) (Testing machines) (Girders) (MLRA 10:10)

SHEVANDIN, Ye.M., kand. tekhn. nauk; KOZLYAKOV, V.V., kand. tekhn. nauk; MAKSIMADZHI, A.I., inzh.; BYKOV, V.A., kand. tekhn. nauk; YEVSTIFEYEV, V.A., kand. tekhn. nauk; BELKIN, V.P., doktor tekhn. nauk; REZNITSKIY, L.Ya., kand. tekhn. nauk; PUTOV, N.Ye., prof.; SHIMANSKIY, Yu.A., akademik; GUREYEV, V.A., inzh.; VAKHARLOVSKIY, G.A., inzh.; KERICHEV, V.M.; KVASHUK, N.F., inzh.; NOGID, L.M., prof.; REVZYUK, G.A., inzh.; ARKHANGORODSKIY, A.G., kand. tekhn. nauk; YEFREMOV, inzh.; OSMOLOVSKIY, A.K., kand. tekhn. nauk.

General discussion. Trudy NTO sud. prom. 7 no.1:112-152 '56. (MIRA 10:12)

1. TSentral'nyy nauchno-issledovatel'skiy institut im. A.N. Krylova (for Shevandin). 2. Leningradskiy korablestroitel'nyy institut (for Kozlyakov, Bykov, Putov, Nogid). 3. TSNIISTEF (for Maksimadzhi). 4. TSentral'noye konstruktorskoye byuro Ministerstva sudostroitel'noy promyshlennosti, g. Gor'kiy (Yevstifeyev, Kvashuk, Revzyuk). 5. TSentral'noye-proyektno-konstruktorskoye byuro Ministerstva morskogo flota (for Reznitskiy). 6. Ministerstvo sudostroitel'noy promyshlennosti (for Gureyev). 7. Gosudarstvennyy soyuznyy proyektnyy institut (for Vakharlovskiy). 8. Zavod "Krasnoye Sormovo" (for Kerichev). 9. NKI (for Arkhangorodskiy). 10. Ministerstvo rechnogo flota (for Yefremov). 11. TSentral'nyy nauchno-issledovatel'skiy institut morskogo flota (for Osmolovskiy).

(Shipbuilding)

SOV/124-58-7-8103

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 113 (USSR)

AUTHORS: Arkhangorodskiy, A. G., Chernyshev, O. L.

TITLE: Mechanical Calculation of Statically Indeterminate Beams (Mekhanicheskiy raschet staticheski neopredelimykh balok)

PERIODICAL: Tr. Nikolayevskogo korablestroit. in-ta, 1956, Nr 8, pp 3-24

ABSTRACT: A description is given of an instrument for the mechanical calculation of continuous beams resting on independent elastic supports. To determine the support moments and the amount of sag which the supports undergo, the span loading is replaced by a concentrated force the magnitude and distribution of which are so selected that the angles of rotation of the support sections are the same as those produced by the actual span loading. Additional concentrated forces are applied to the elastic supports, such that the pressure of each span on the elastic supports is the same as it would be in the presence of the actual load. With the load thus transformed, the bending moments and amount of sag remain unchanged. The instrument in question is a uniform continuous beam subjected to

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Mechanical Calculation of Statically Indeterminate Beams

concentrated force loads along its spans and at its points of support. When a stepped variable-section beam is calculated, the spans are made to vary accordingly. All necessary formulae are given for determining: a) the concentrated forces needed to replace a given load, b) the requisite analog span lengths, and c) the requisite stiffness of the analog's elastic supports. The bending moment in the support sections of the analog is expressed by the curvature (measured with a curvature meter); the displacement of the supports is determined with an indicator. Formulae are included for translation of the analog data into data applicable to full-scale conditions. A description of the instrument is given, and a photograph of it is shown. There are examples of calculations.

1. Beams--Mechanical properties 2. Beams--Mathematical analysis

A.A. Kurdyumov

Card 2/2

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 7, p 118 (USSR) SOV/124-58-7-8146

AUTHOR: Arkhangorodskiy, A. G.

TITLE: The Design of Compression-stressed Coverings Reinforced by Longitudinal Bulbous-strip Deck Beams (Proyektirovaniye szhatykh perekrytiy s prodol'nymi balkami polosobul'bovogo profilya

PERIODICAL: Tr. Nikolayevskogo korablestroit. in-ta, 1956, Nr 8, pp 25-28

ABSTRACT: The author seeks to determine the elements of a least-weight covering subjected to compression. The compressive force, the relationship between the Eulerian stresses present in the planking and in the longitudinal framework and the yield point of the material, and the safety factor are all given. The author overly complicates the problem in that he would determine the area of the longitudinal connections from the strength properties applying in the case of a flexure of the ship as a whole, and the minimum-weight problem can be stated relative only to the transverse framework [Kurdyumov, A. A., Prochnost' korablya (The Strength of a Ship). Sudpromgiz, 1956, 250 pp].

Card 1/1

1. Beams-Design 2. Mathematics--Applications

A. A. Kurdyumov

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 3, p 116 (USSR) SOV/124-58-3-3377

AUTHOR: Arkhangorodskiy, A. G.

TITLE: The Dependence of the Optimal Yield Strength of the Steel Upon the Principal Dimensions of a Ship (Zavisimost' optimal'nogo predela tekuchesti stali ot glavnykh razmereniy sudna)

PERIODICAL: Tr. Nikolayevskogo korablestroit. in-ta, 1956, Nr 8, pp 58-64

ABSTRACT: The value of the optimal yield strength of the steel for ships of various dimensions is determined; a sole starting point therein is the relationship between the weight of the compressed plating and the yield strength of the material of which the plating is made.

Reviewer's name not given

Card 1/1

137-58-1-1769

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 1, p 241 (USSR)

AUTHOR: Arkhangorodskiy, A. G.

TITLE: Effectiveness of Employment of High-strength Steels in Building the Hulls of Sea-going Vessels (Ob effektivnosti primeneniya staley povyshennoy prochnosti dlya postroyki korpusov morskikh sudov)

PERIODICAL: Tr. Nikolayevskogo korablestroit. in-ta, 1956, Nr 8, pp 65-70

ABSTRACT: Specific examples are cited to show the advantages of the employment of high-strength steels for medium-sized and large merchant marine vessels. A graph is presented of the relationship between the weight of basic metal in the hull of the ship and the σ_s of the steel used, also a curve that shows the weight saved when standard ship plate (St4) is replaced by high-strength steel. For all practical purposes, the most advantageous steel for merchant vessels of average payload is a steel having $\sigma_s = 35$ kg/mm^2, which corresponds to grade SKhL1 steel. When oil tankers and bulk carriers built by the combined method of framing are involved, and SKhL1 steel is used in place of St1, the metal required for building the midsection of the hull can be

Card 1/2

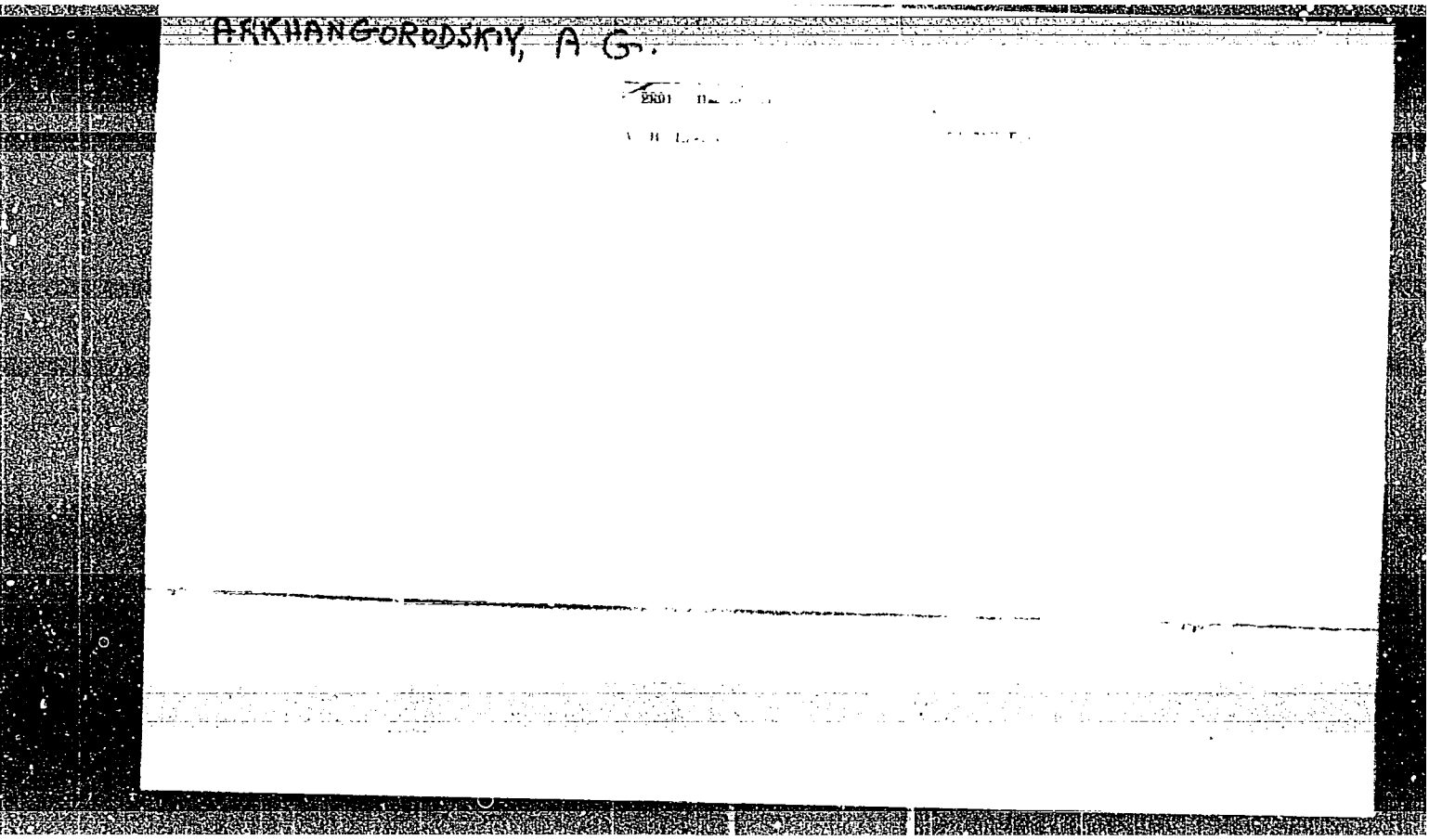
Effectiveness of Employment of High-strength Steels (cont.)

reduced by approximately 27 percent and for the hull as a whole by 22 percent. The greatest lightening of the hull due to the use of steel of higher strength is obtained when the combined system of framing is employed. When the transverse system of framing the hull is used, the employment of the high-strength steel is less effective. For the hulls of vessels of large capacity (10,000 t and more) it is profitable to use not only a steel with σ_s=35 kg/mm^2, but also a stronger steel, in which σ_s is 40 kg/mm^2. The small increase in the cost of the steel does not significantly raise the cost of the building of the ship.

1. Ship hulls--Materials 2. Steel--Applications

A. S.

Card 2/2



ARKHANGORODSKIY, A.G., kand. tekhn. nauk; TAUBIN, G.O., kand. tekhn. nauk.

Effect of mechanical properties of steel used for construction of hulls on structural hull frames for merchant vessels of various types. Trudy NTO sud. prom. 7 no.1:75-92 '56. (MIRA 10:12)
(Steel--Tesing) (Hulls (Naval architecture))

SOV/124-58-5-5922

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 140 (USSR)

AUTHORS: Arkhangorodskiy, A.G., Belen'kiy, L.M., Chernyshev, O.L.

TITLE: A Device for Design Calculation of Beams on Flexible Supports on a Continuous Flexible Foundation (Pribor dlya rascheta balok, lezhashchikh na uprugikh oporakh i sploshnom uprugom osnovanii)

PERIODICAL: V sb.: Issledovaniya po teorii sooruzheniy. Nr 7. Moscow, Gosstroyizdat, 1957, pp 575-586

ABSTRACT: Description of a device serving for the mechanical calculation of statically indeterminate beams lying on free flexible supports. The basic idea of the calculation with the aid of this device consists in the following: The original beam is replaced by a similar model; the loads and the coefficient of the rigidity of the supports k_i are simulated; the sagging of the supports f_i is measured, and their reaction is calculated on the basis of measurements thereon by the formula $R_i = k_i f_i$. Then the results obtained from the model beam are extrapolated for the original beam. A continuous flexible foundation can be simulated by the simple device of increasing the number of flexible

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SOV/124-58-5-5922

A Device for Design Calculation of Beams (cont.)

supports. Examples of calculation are given and the possibility of extended field application of the described device is commented upon.

P.I. Klubin

1. Beams--Design 2. Beams--Testing equipment
3. Mathematics

Card 2/2

ARKHANGORODSKIY, A.G., kand.tekhn.nauk; HELEN'KIY, L.M., inzh.

Increasing the specific volume loading capacity of a cargo vessel. Sudostroenie 24 no.1:1-3 Ja '58. (MIRA 11:2)
(Ships--Cargo)

ARKHANGORODSKIY, Aleksandr Grigor'yevich; BELEN'KIY, Leonid Mikhaylovich; CHUVIKOVSKIY, G.S., nauchnyy red.; KAZAROV, Yu.S., red.; FRUMKIN, P.S., tekhn.red.

[Analytical method of designing ship hulls] Analiticheskii metod proektirovaniia k rpusa sudna. Leningrad, Gos.soiuznoe izd-vo sudostroit.promyshl., 1959. 207 p. (MIRA 12:3)
(Hulls (Naval architecture))

ARKHANGORODSKIY, A.G.; BELEN'KIY, L.M.

Problems of nongeometrical similarity in structural mechanics. Nauch.dokl.vys.shkoly; mash. i prib. no.1:58-62 '59. (MIRA 12:8)

1. Stat'ya predstavlena kafedroy "Stroitel'naya mekhanika korablya" Nikolayevskogo korablestroitel'nogo instituta.
(Structures, Theory of)

ARKHANGORODSKIY, A.G. [Arkhanhorods'kyi, O.H.] (Nikolayev); BELEN'KIY, L.M. [Bilen'kyi, L.M. (Nikolayev)

Problems of the similarity of thin-walled profiles. Prykl. mekh. 5 no.4:421-427 '59. (MIRA 13:3)

1.Nikolayevskiy sudostroitel'nyy institut.
(Steel, Structural)
(Strength of materials)

ARKHANGORODSKIY, A.G., kand.tekhn.nauk; POPOV, V.G., aspirant

Stability of cylindrical shells reinforced with inclined lateral stiffening ribs. Izv.vys.ucheb.zav.; mashinostr. no.6: 61-61 '59. (MIRA 13:5)

1. Nikolayevskiy korablestroitel'nyy institut.
(Elastic plates and shells)

S/145/60/000/003/001/010
D221/D301

AUTHORS: Arkhangorodskiy, A.G., Candidate of Technical Sciences and Popov, V.G., Engineer

TITLE: Strength of cylindrical shells reinforced by transversal and longitudinal ribs

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 3, 1960, 3 - 13

TEXT: The article refers to the work of Kafedra stroitel'noy mekhaniki korablya, Nikolayevskiy korablestroitel'nyy institut (Department of Structural Marine Mechanics at the Nikolayevskiy Marine Institute) during 1952-1953. Its purpose was to determine the possibilities of strength increase of cylindrical shells by longitudinal ribs. On the assumption that bending is small when compared to thickness, then the linear solution is given by

$$W = \sin \frac{m\pi x}{l} \sum_{n=1}^{N} a_n \sin \frac{ny}{R}, \qquad (1)$$

Card 1/5

where designations are indicated in Fig. 1. With the use of Ritz's method the author finds expressions for the potential energy of deformation and bending of the shell, as well as the work of external forces. After defining forces in the meridional sections due to transversal load, g, the function of stresses, Φ, as the integral of combined deformations is found. This leads to the equation of the system's energy. In the case of all-round uniform pressure, it is possible to write with good approximation, that

$$p_x = \frac{g R}{2h}; \text{ and } \quad p_y = \frac{g R}{h}, \tag{10}$$

where p_x and p_y are the compressive stresses. This results in simplified expressions. The minimum critical pressure is obtained when $m = 1$. Special instances of reinforced ribs are then considered. A set of equations is evolved for six-equidistant ribs. The limit of angle $\psi = \frac{2\pi y_o}{R}$ will be between 0 and 30°. When the shell is reinforced by seven ribs, then this angle varies between 0 and 26°, and

maximum El is taken for each of these values. Finally, the author discussed nine ribs. Experimental investigation was carried out to supplement the theoretical work. Although the ribbing different from above recommendations, results were used to determine the effect of ribs on critical pressure. The dimensions of models are tabulated, and illustrations given of them. During tests knocks were observed which corresponded to formation of dents in the shell, and when pressure did not fall, contrary to shells without ribs. The character of waviness in the shell is markedly changed at the instant of dent formation. A detailed description is given of these deformations. For comparison, results on shells without reinforcements were also tabulated. The model in these cases was subject to deformations in an axial direction after the appearance of dents and without pressure increase. On the basis of theoretical and experimental investigations, the following deductions were made. The longitudinal ribs ensure a general increase of strength. Deviations from the correct shape of the shell affect its stability to a lesser extent than in the case of non-reinforced units. It is expedient to mount ribs with higher strength on bending and torsion for the

rational use of the material of the shell. The carrying capacity of shells reinforced by cross ribs only is determined by the shell when subject to all-round external pressure, whereas in instances of longitudinal and cross ribs it depends on these reinforcements. There are 5 figures, 2 tables, and 5 Soviet-bloc references.

ASSOCIATION: Nikolayevskiy korablestroitel'nyy institut (Nikolayevskiy Marine Construction Institute)

SUBMITTED: May 16, 1959

Card 4/5

3503u
S/145/60/000/010/002/014
D262/D304

18.6100
AUTHORS: Arkhangorodskiy, A.G., Candidate of Technical Sciences and Kochanov, Yu.P., Engineer

TITLE: Modelling the stability of flat decks

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 10, 1960, 48 - 55

TEXT: The purpose of this study is to examine the possibility of determining the stability of decks on specially built modelling installations. The principle is based on the known relationship between loads and deformations of rods at the moment when their stability is disturbed. The utilization of the installation is based on the theory of similarity. The phenomenon of the loss of stability is described by the general equations

$$Ei_m \frac{\partial^4 v}{\partial x^4} + T_m \frac{\partial^2 v}{\partial x^2} = 0 \quad (\text{at } y = y_m) \qquad (1)$$

Card 1/4

Modelling the stability of flat decks

$$b_m EI_n \frac{\partial^4 v}{\partial y^4} = EI_m \frac{\partial^3 v}{\partial x^3}\Big|_{x_n-0}^{x_n+0} - k_{mn} v\Big|_{\substack{x=x_n \\ y=y_m}}, \quad (2)$$

$$U_n EI_n \frac{\partial^2 v}{\partial y^2} = \frac{\partial v}{\partial y} \quad \left(\begin{matrix} \text{at} \\ \text{~~при~~} \; x = x_n \\ y = 0 \; \text{and} \; y = L \end{matrix}\right), \quad (3)$$

$$U_m EI_m \frac{\partial^3 v}{\partial x^2} = \frac{\partial v}{\partial x} \quad \left(\begin{matrix} \text{at} \\ \text{при} \; y = y_m, \\ x = 0 \; \text{and} \; x = l \end{matrix}\right). \quad (4)$$

and

for the case shown in Fig. 1 (v - area, i - sectional moment of inertia of a longitudinal beam, I - sectional moment of inertia of a transverse beam, T - contracting force of a longitudinal beam, U - coefficient of yieldingness of elastic and fittings of a beam; indexes: m - successive number of a longitudinal beam, n - successive number of a transverse beam) the constants of similarity are given by

Card 2/4

Modelling the stability of flat decks

$$C_v = \frac{v}{v_o} \qquad C_{K_{mn}} = \frac{k_{mn}}{i_{omn}}$$

$$C_l = \frac{l}{l_o} \qquad C_{U_m} = \frac{U_m}{U_{om}} = \frac{U_{lm}}{U_{olm}}$$

$$C_L = \frac{L}{L_o} \qquad C_{U_n} = \frac{U_n}{U_{on}} = \frac{U_{l.n}}{U_{ol.n}} \qquad (5).$$

$$C_{l_m} = \frac{l_m}{l_{om}} \qquad C_{T_m} = \frac{T_m}{T_{om}}$$

$$C_{l_n} = \frac{l_n}{l_{on}}$$

the conditions of similarity, derived from equations (1 - 4) are also given in equation form. The maximum size of the installation can be 1600 mm x 900 mm. The results obtained from a test show that the errors do not exceed 10 % in comparison with the theoretical calculations. It is stated that this method can be used on an equal footing with the existing methods of calculations and also could be

Card 3/4

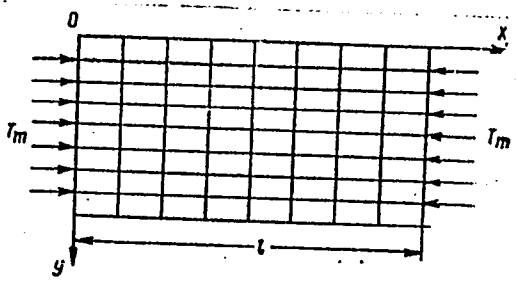
Modelling the stability of flat decks S/145/60/000/010/002/014
D262/D304

used to solve more involved problems, for example when longitudinal and transverse beams are not equidistant and their moments of inertia vary. There are 3 figures and 4 Soviet-bloc references.

ASSOCIATION: Nikolayevskiy korablestroitelnyy institut (Nikolayev Shipbuilding Institute)

SUBMITTED: December 26, 1959

Fig. 1.



(Рис. 1)

Card 4/4

ARKHANGORODSKIY, A. G.

Doc Tech Sci - (diss) "Several problems of designing chassis designs." Gor'kiy-Kaliningrad,1961. 26 pp; (Gor'kiy Inst of Water Transport Engineers); 150 copies; price not given; list of author's works on p 25-26 (10 entries); (KL, 6-61 sup, 210)

S/145/62/000/002/005/009
D262/D308

AUTHORS: Arkhangorodskiy, A.G., Candidate of Technical Sciences, and Kochanov, Yu.P., Engineer

TITLE: Modelling of bending of frames with fixed joints

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 2, 1962, 86 - 95

TEXT: The work principle of the new device designed by the author is based on the relationship between angles of rotation of joints and moments about the points of support of the frame rods. The conditions of similarity are studied and a detailed description of the device is given. A numerical example is given of design of a statically undeterminable flat frame. The error in design does not exceed 5 %. The device can be used in calculating ship frames and is recommended for laboratory work. There are 5 figures and 2 tables.

ASSOCIATION: Nikolayevskiy korablestroitel'nyy institut (Nikolayev Shipbuilding Institute)

SUBMITTED: December 26, 1959

Card 1/1

ARKHANGORODSKIY, A.G. [Arkhanhorods'kyi, O.H.] (Nikolayev); POPOV, V.G. [Popov, V.H.] (Nikolayev)

Effect of the rigidity of torsion of the framework on the stability of the sheathing of a cylindrical shell. Prykl.mekh. 8 no.2:178-185 '62. (MIRA 15:3)

1. Nikolayevskiy korablestroitel'nyy institut.
(Elastic plates and shells)

ACC NR: AP6036879 (N) Monograph UR/

Arkhangorodskiy, Aleksandr Grigor'yevich; Belen'kiy, Leonid Mikhaylovich; Litvin, Aleksandr Borisovich

Collapsible paddings in shipbuilding and ship repair (Sminayushchiyesya prokladki v sudostroyenii i sudoremonte) Leningrad, Izd-vo "Sudostroyeniye", 1966. 130 p. illus., biblio. 2700 copies printed.

TOPIC TAGS: collapsible padding, shipbuilding engineering, shock absorber

PURPOSE AND COVERAGE: This booklet is intended for engineering and technical staff engaged in the construction and repair of seagoing and river vessels, and in other fields of technology. It can be used by students of higher technical schools and institutes. Utilization of collapsible padding in shipbuilding and shiprepair plants is discussed, and the selection of materials, their mechanical properties, and the design and construction of collapsible paddings are described in detail. There are 52 references, 51 of which are Soviet.

TABLE OF CONTENTS [Abridged]

Card 1/2 UDC: 629.12.002.3

ACC NR: AP6036879

SUB CODE: 13,11/ SUBM DATE: 08Apr66/ ORIG REF: 051/ OTH REF: 001/

Card 2/2

ARKHANGORODSKIY, L., inzhener; ZUBOVSKIY, G., inzhener.

Construction and assembly of a drying and cleaning tower.
Muk.-elev.prom. 23 no.2:6-9 F '57. (MLRA 10:5)

1. Vsesoyuznyy spetsializirovannyy montazhnyy trest Spetselevatormel'stroy.
(Grain elevators)

ARKHANGORODSKIY, L.A.; VITELIS, M.F. [deceased]; GRIGOR'YEVA, K.P., inzhener, redaktor; LAZAREVSKIY, L.I., redaktor; LABUS, G.A., tekhnicheskiy redaktor

[Assembly of elevators] Montazh elevatorov. Pod red. K.P.Grigor'eva. Moskva, Gos. izd-vo tekhn. i ekon. lit-ry po voprosam zagotovok, 1951. 479 p. [Microfilm] (MLRA 10:1)
(Grain elevators)

ARKHANGORODSKIY, Leonid Aleksandrovich, inzhener; BERNDERSKIY, S.N., kandidat tekhnicheskikh nauk, redaktor; KRIVYAKIN, B.I., redaktor; GOLUBKOVA, L.A., tekhredaktor

[Repair of elevator equipment] Remont oborudovaniia elevatorov. Pod red. S.N.Benderskogo. Moskva, Izd-vo tekhn. i ekonomicheskoi lit-ry po voprosam zagotovok, 1954. 224 p. [Microfilm] (MLRA 8:3)
(Grain handling machinery--Repairing)

SKVERCHAK, D.; ARKHANGORODSKIY, L. [A.]

Using tower cranes in pouring concrete for grain elevators.
Muk.-elev.prom. 21 no.11:25-27 N '55. (MLRA 9:4)

1.Trest TSentrozagotstroy.
(Concrete construction) (Cranes, derricks, etc.)

ARKHANGORODSKIY, Leonid Aleksandrovich; LANDA-DALEV, Lev Mironovich; PISAK, B.Ya., spets. red.; VYSOTSKAYA, R.S., red.; GOLUBKOVA, L.A., tekhn.red.

[Rapid assembly of prefabricated elevators and drier-cleaner towers] Skorostnoi montazh zagotovitel'nykh elevatorov i sushil'no-ochistitel'nykh bashen. Moskva, Izd-vo tekhn. i ekon. lit-ry po voprosam mukomol'no-krupianoi, kombikormovoi promyshl., i elevatorno-skladskogo khoz., 1958. 266 p. (MIRA 11:5)
(Grain elevators)

ARKHANGORODSKIY, L.A.; BUKSHTEYN, Ya.A.; VOROB'YEV, S.V.; GAYENKO, P.A.; DOLGOV, Ye.N.; ZHIGLIN, A.A.; ZUBOVSKIY, G.P.; ISHKOV, I.G.; KRYZHANOVSKAYA, G.L.; LISTRATOV, A.A.; LUR'YE, R.I.; MOROZOV, N.P.; OSTROZETSER, A.S.; PAVLOV, N.A.; PETROV, L.M.; POPOV, V.N.; TARTAKOVSKIY, M.A.; TAUBE, D.N.; KHANIN, L.T.; SHAPIRO, TS.S.; SHVAYTSBURG, B.A.; SHEVTSOV, V.D.; DENISENKOVA, L.M., red.

[Assembler's handbook on performing mechanical assembly and special work on grain elevators and grain processing enterprises] Spravochnik montazhnika; po proizvodstvu mekhanomontazhnykh i spetsial'nykh rabot na elevatorakh i predpriiatiiakh po pererabotke zerna. Moskva, TSentr. in-t nauchno-tekhn. informatsii i tekhniko-ekon. issl., 1963. 519 p. (MIRA 17:7)

BAUM, Aleksandr Yefimovich, kand. tekhn. nauk; GERZHOY, A.P., laureat Gosudarstvennoy premii, kand. tekhn. nauk, spets. red.; PTITSYN, S.D., kand. tekhn. nauk, retsenzent; ARKHANGORODSKIY, L.A., inzh., red.; VOLKOV, P.N., red.

[Grain drying] Sushka zerna. Izd.3., perer. i dop. Moskva, TsINTI, 1963. 267 p. (MIRA 17:11)

TUL'CHINSKIY, Yefim Moiseyevich, inzh.; ARKHANGORODSKIY, L.A., inzh., retsenzent; ROZHANSKIY, S.V., inzh., retsenzent; KLEYMAN, L.M., red.

[Elements and assembly of equipment for elevators and grain-receiving stations] Konstruktsii i montazh oborudovaniia elevatorov i khlebopriemnykh punktov. Moskva, Kolos, 1965. 295 p. (MIRA 18:11)

ARKHANGORODSKIY, O.G.

35527

S/198/62/008/002/008/011
D299/D301

10.7000
24.4200

AUTHORS: Arkhanhorods'kyy, O.H., and Popov, V.H. (Mykolayiv)

TITLE: Influence of torsional rigidity of the wall on the stability of a cylindrical shell

PERIODICAL: Prykladna mekhanika, v. 8, no. 2, 1962, 178 - 184

TEXT: The influence is considered of the elastic clamping of the edges on the stability of a closed cylindrical shell under uniform pressure. The obtained results are used for determining Euler's load (pressure) for a shell, stiffened by equally-spaced ribs. The problem is solved by the energy method. The normal-bending function is taken in the form

$$\tilde{w} = f\left[(1-\varkappa)\sin\frac{m\pi x}{l} + \varkappa\sin^2\frac{m\pi x}{l}\right]\sin\frac{ny}{R}, \qquad (1)$$

where R is the shell radius, h - the wall thickness, l - the length of the shell (or distance between ribs), $\varkappa$ - the coefficient of the resistance pair, n - the number of waves, m - the number of half-waves. The nonlinear terms in the compatibility equation are ne-

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glected. After calculations, one obtains the equation for the total energy of the system. The pre-critical stressed state is considered to be a membrane state. The equation for Euler's load (pressure) is:

$$q_e = \frac{Eh}{R}\frac{1}{0{,}5C_6\alpha^2 + C_6 n^2}\left[\frac{\alpha^4}{(\alpha^2+n^2)^2(4\alpha^2+n^2)^2}(C_1\alpha^4 + C_2\alpha^2 n^2 + C_3 n^4) + \right.$$

$$\left. + \frac{h^2}{12(1-\mu^2)R^2}(C_4\alpha^4 + C_5\alpha^2 n^2 + C_6 n^4) + 2\frac{h^2}{12(1-\mu^2)}\frac{\alpha^3}{Rl}C_7\right], \quad (12)$$

where the coefficients C involve expressions in $\varkappa$. By setting, in Eq. (12), $\varkappa = 0$, one obtains von-Mises well-known formula. The Euler load (pressure) of an elastically clamped shell, is

$$q_e = Kq_{0_e}, \quad (14)$$

where

$$q_{0_e} = \frac{Eh}{R}\frac{1}{0{,}5\alpha^2 + n^2}\left[\frac{\alpha^4}{(\alpha^2+n^2)^2} + \frac{h^2}{12(1-\mu^2)R^2}(\alpha^2+n^2)^2\right]$$

is Euler's pressure of a freely supported shell, and K is a factor which takes into account the influence of the elastic clamping of the edges, on stability. The values of K, as a function of the

shell parameters α, R, h, and $\varkappa$, are listed in 2 figures. The clamping of the edges has a much greater effect in comparatively short shells. The parameters $\varkappa$ and n are interrelated, $\varkappa$ depending on the elastic and geometric properties of the shell and of the reinforcing ribs, and n - on the degree of clamping of the edges on the ribs. Further, the differential equation is considered of the deformation of a shell, clamped along the line, joining the ribs and wall. The clamping is considered as rigid with respect to bending, and as elastic -- with respect to rotation. One obtains:

$$\varkappa = \frac{1}{1 + \dfrac{1}{\pi h^3 \cdot 3(1-\mu^2) l \left(\dfrac{n}{R}\right)^2 \left[I_\omega \left(\dfrac{n}{R}\right)^2 + \dfrac{1}{2(1+\mu)} I_d\right]}}, \qquad (22)$$

where I_ω and I_d are moments of inertia of the rib cross-sections. The above solution is valid within the limits of accuracy of the adopted assumptions. More accurate results would require a nonlinear treatment of the problem. Finally, a numerical example is considered; thereby the critical pressure q_e was found to have increased

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Influence of torsional rigidity ... S/198/62/008/002/008/011
D299/D301

by 45 % as a result of the torsional rigidity of the ribs. There are 2 figures and 5 Soviet-bloc references.

ASSOCIATION: Mykolayivs'kyy korablebudivnyy instytut (Mykolayiv Ship Building Institute)

SUBMITTED: October 19, 1960

Card 4/4

ARKHANIKOV, N.S. and MAL'TSEV, V.N.

Aerodynamics. Defense Publishing House (1952) p. 209

ARKHANOV, YE. P.

In the article, "Method of Control of the Equalization of Films According to Light and Shade," Ye. P. Arkhanov deals with a method of testing the equalization of aerial films by means of slant illumination of the film under which are imbedded fine threads of a thickness of 0.02 and 0.04 mm. The resultant width of the photographic image of this "wave" reflects the magnitude, by several hundreds of times, of the deviation of the film from the level. Thus the relationship between this dimension of deflection and the width caused by the "wave" is obtained, and the degree of equalization is then easily evaluated.

The method can find application in laboratories studying the processes and methods of equalization of films in aerial cameras, since it gives the most complete and graphic picture of equalization which it is possible to observe immediately; in aerial camera flying tests; and in the fulfillment of the production of aerial photographs for the periodic control of the equalization of film by making special photographs at the end and beginning of the courses, or during the interval between photographing.. This control of the negative can also aid in subsequent photogrammetric work. (Geodeziya i Kartografiya, No 1, Jan 57, pp 24-27) (U)

SUM. 1374

ARKHAROV, A.M., kand.tekhn.nauk

Centrifugal rectifier for air separation. Izv.vys.ucheb.zav.; mashinostr. no.4:106-124 '59. (MIRA 13:4)

1. Moskovskoye vysshoye tekhnicheskoye uchilishche im.Baumana.

(Gases--Separation)

GERSH, S.Ya. [deceased], doktor tekhn.nauk.prof.; ARKHAROV, A.M., kand tekhn.nauk.

Experimental investigation of a centrifugal rectifier for air separation. Izv.vys.ucheb.zav.; mahinostr. no.4:125-140 '59. (MIRA 13:4)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche im.Baumana.
(Gases--Separation)

USSR/ Engineering - Mechanics

Card 1/1 Pub. 128 - 6/35

Authors : Arkharov, A. M., Engineer, and Mironov, G. G., Engineer

Title : On computing the work of machines

Periodical : Vest. mash. 35/3, 13 - 14, Mar 1955

Abstract : A study is made of the various methods of computing the work done by a machine, such as: number of revolutions made, distance in kilometers traversed, number of completed pieces of work and the number of hours of operation. These several methods are taken up separately and their advantages or shortcomings pointed out. Illustrations.

Institution : .....

Submitted : .....

ARKHAROV, Alekaey Mikhaylovich; MIRONOV, Georgiy Georgiyevich; ZAVARTSEV, A.M., inzh., retsenzent; BERZIN, B.O., kand.tekhn.nauk, red.; TAIROVA, A.L., red.izd-va; EL'KIND, V.D., tekhn.red.

[Automatic recording of the performance of machines] Avtomaticheskii uchet raboty mashin. Moskva, Gos. nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 113 p. (MIRA 11:3)
(Machine-shop practice) (Recording instruments)

ARKHAROV, A.M.

USSR/Atomic and Molecular Physics - Heat D-4

Abs Jour : Ref Zhur - Fizika, No 1, 1958, 754

Author : Arkharov, A.M.
Inst :
Title : Stabilization of the EMF of Thermocouples.

Orig Pub : Izmerit. tekhnika, 1957, No 3, 54-55

Abstract : A method is developed for preparation of clad thermocouples which results in their high stability. It becomes possible, in the manufacture of a large number of thermocouples, to calibrate only several specimens and on the basis of this to plot a single calibration curve for the entire series, with resultant high measurement accuracy (up to 0.01° C, depending on the scale of the calibration curve) for all the thermocouples in a given series.

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AUTHORS: Gersh, S. Ya., Professor, Doctor of Technical Sciences (Deceased), Arkharov, A. M., Engineer SOV/67-11-5-1/18

TITLE: Horizontal Centrifugal Rectifier (Gorizontal'nyy tsentrobezhnyy rektifikator)

PERIODICAL: Kislorod, 1958, Vol 11, Nr 5, pp 1-10 (USSR)

ABSTRACT: The report demonstrates the construction and the mechanism of a rectifier for the production of oxygen by air liquefaction. The rectifier A-4-MVT has a horizontal axis which performs rocking motions, with an inclination of the axis up to 70 degrees. The capacity of various rectification cells is experimentally investigated, namely, spiral cells with plair and knotty inner surface of various spiral length and coaxial cells. As a typical feature, the use of irrigated condensing evaporators is mentioned. The principle of the separation of the atmospheric nitrogen and oxygen is based on the following: The air is introduced into the rectifier under 16 atmospheres absolute pressure, partly condensed on the condensing evaporator and passed into the center of the rotor by a throttle valve. By centrifugal force the liquid air in the spiral is drawn out into a thin film (0.2-0.3 mm). The vapor

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flows through the spiral in the opposite direction. The liquid leaving the spiral is vaporized on a condensing evaporator and removed. By the turbulent countermovement of the phases an exchange between them promptly takes place. Nitrogen passes into the vapor-, oxygen into the liquid phase. The intensity of the mass exchange depends on the surface of the turbulent fluid film and on the hydrodynamics of the flow. The critical equation for the coefficient of the mass exchange for the spiral cell resulted from the experimental data and computations: $K = \frac{N}{\Delta y \cdot F}$ (2)

Investigations were carried out of: The dependence of the purity of the obtained oxygen on the inclination of the axis, whereby for shorter spirals a considerable improvement of the degree of purity with an increasing angle of inclination results (Frayman, Ref 19). Also velocity of rotation influences the degree of purity, in particular in coaxial cells. The thinness of the fluid film prevents the liquid from falling through. It is theoretically and experimentally suggested that by suitable combination of rocking motions and velocity of rotation, by the use of many-way cells, apparatus having a

capacity of 1000 and more kg per hour can be constructed. In the investigated rectifier a maximal oxygen purity of 99.5 % at an extraction from the air of 57-62 % could be obtained. The oxygen content in the obtained nitrogen is 9-10%. There are 10 figures, 1 table, and 19 Soviet references.

ARKHAROV, A.M.; YASTREBOVA, Ye.D.

Performance of graphite plates in a rotary blower[with summary in English]. Inzh.-fiz.zhur. no.12:85-89 '58. (MIRA 11:12)

1. Vysshaye tekhnicheskoye uchilishche imeni Baumana, g. Moskva.
(Graphite--Testing)

GOLOVNITSOV, A.G., doktor tekhn. nauk, prof., red.; ARKHAROV, A.M., kand. tekhn. nauk, red.;

[Summaries of reports made at the Scientific and Technological Conference on the Work of the Low-Temperature Research Laboratory During the Period 1957-1960] Tezisy dokladov Nauchno-tekhnicheskoy konferentsii po itogam raboty problemnoi laboratoii glubokogo kholoda za period s 1957 po 1960 gg. Pod red. A.G.Golovintsova i A.M.Arkharova. Moskva, M-vo vysshego i srednego spetsial'nogo obrazovaniia RSFSR, 1960. 59 p. (MIRA 14:11)

1. Nauchno-tekhnicheskaya konferentsiya po itogam raboty problemnoy laboratorii glubokogo kholoda za period s 1957 po 1960 gg.
(Low temperature research—Congresses)

ARKHAROV, A.M., kand.tekhn.nauk

Air separation in centrigugal rectification apparatus. Khim.mash. no.3:8-12 My-Je '61. (MIRA 14:5)
(Gases—Separation)

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AUTHORS: Golovintsov, A.G., Doctor of Technical Sciences, Professor; Arkharov, A.M., Candidate of Technical Sciences; Stolper, M.B., Engineer

TITLE: Investigation of increased-pressure cycle-processes for obtaining liquid oxygen

PERIODICAL: Khimicheskoye mashinostroyeniye, no. 4, 1961, 15-19

TEXT: Experiments with increased-pressure cycle-processes for obtaining liquid oxygen were carried out at the MVTU im. Bauman. Increased-pressure cycles have all the advantages of low-pressure cycles and are more economical. Only turbodynamos are used in increased-pressure cycles. The article deals with the following 3 variants: (1) increased-pressure cycle with one turbo-pressure-reducer-valve, (2) increased-pressure cycle with two turbo-pressure-reducer-valves and (3) a variation of the latter. Calculations of the systems, given in the article, were made by engineers N. Kruglova, L. Rusanova, Z. Kats, and L. Buchek under the guidance of the authors. The technological system used in variant (1) (Fig. 1) does not differ essentially from the P.L. Kapitsa cycle [Abstracter's note: The Kapitsa cycle is not described in

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