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S/020/63/148/003/035/037
B117/B186

571600

AUTHORS: Gulyayev, G. V., Kozlov, G. I., Polak, L. S. Khitrin,
L. N., Corresponding Member AS USSR, Khudyakov, G. N.

TITLE: Transformation of methane into acetylene in the argon
plasma beam

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 148, no. 3, 1963, 641-643

TEXT: In order to reduce the specific energy consumption during production of acetylene and to achieve a high degree of transformation of methane into acetylene, experiments were made with argon plasma beam. The latter was produced in a 15 kw plasmotron by a stabilized argon discharge ignited between a tungsten cathode and a water-cooled copper anode. Plasma was discharged through a 3 mm jet into the anode. Methane was introduced into the plasma beam through special openings in the jet wall at an angle of 90° to the direction of plasma discharge. Reaction products were tested chromatographically for content of H₂, CH₄, C₂H₆, C₂H₄ and C₂H₂. The dependence of the degree of cracking of methane on its consumption was investigated at 280 a, a power of 9.5 kw and an argon consumption of
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60 l/min. The analysis of gas specimens showed that the specific energy consumption is lower in the center (along the axis) of the plasma beam than in the cross section of the total beam. A sufficiently high degree of cracking could be obtained at the equivalent of 5000°C along the beam axis and a methane consumption of 30 l/min. In this case the specific energy consumption was 15 kwh/m³ C₂H₂ per 1 Nm³ of the acetylene produced. 80% cracking in the complete plasma beam could be achieved only at a high specific consumption (~40 kwh/m³ C₂H₂). This may be traced back to relatively high energy losses in the jet walls. Though the specific energy consumption could not be reduced by increasing the amperage (up to 435 a) a certain reduction of the same (down to 24 kwh/m³ C₂H₂) could be achieved by using jets of larger diameters (4.5, 7 mm) and simultaneously increasing the plasmotron power (to ~12.5 kw), as well as by shortening the electrode distance. Experiments with 4.5 and 7 mm jets showed that the specific energy consumption would be about 13 kwh/m³ C₂H₂ in a standard plasmotron of ~70% efficiency and an argon plasma beam. Further possibilities of using plasma beams for endothermal chemical reactions are

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here investigated: transformation of methane into acetylene in a 200-kw
plasmotron with argon, hydrogen and other carrier gases; transformation
of propane, butane and the propane-butane fraction in the plasma beam;
production of bound nitrogen in the plasma beam. There are 1 figure and
2 tables.

ASSOCIATION: Institut neftekhimicheskogo sinteza Akademii nauk SSSR
(Institute of Petrochemical Synthesis of the Academy of
Sciences USSR); Energeticheskiy institut im. G. M.
Krzhizhanovskogo (Power Engineering Institute imeni
G. M. Krzhizhanovskiy)

SUBMITTED: October 13, 1962

Card 3/3

KOZLOV, G.I.; FINKEL, V.M.

Data governing the formation of the cycle in the thermal decomposition of methane. U.S. patent application 7,243,000 (1974, 1975)

KOZLOV, G.I.; KHORRE, V.G.

Using the method of single-pulse shock tubes in studying the
thermal decomposition of some hydrocarbons. Izv. Akad. Nauk
topl., ser. maz. i gaza no. 5:157-171 '64 (MIRA 19:2)

ALAD'YEV, I.T.; ALEKSANDROV, B.K.; BAUM, V.A.; GOLOVINA, Ye.S.;
GOL'DENBERG, S.A.; ZHIMERIN, D.G.; ZAKHARIN, A.G.; IYEVLEV, V.N.;
KNORRE, V.G.; KOZLOV, G.I.; LEONT'YEVA, Z.I.; MARKOVICH, I.M.;
MEYEROVICH, E.A.; MIKHNEVICH, G.V.; POPKOV, Z.I.; POPOV, V.A.;
PREDVODITELEV, A.S.; PYATNITSKIY, L.N.; STYRIKOVICH, M.A.;
TOLSTOV, Yu.G.; TSUKHANOVA, O.A.; CHUKHANOV, Z.F.; SHEYNDLIN, A.Ye.

Lev Nikolaevich Khitrin, 1907-1965; obituary. Izv. AN SSSR. Energ.
i transp. no.2:159-160 Mr-Ap '65. (MIRA 18:6)

L 24077-66 EWT(1)/EWP(m)/EWT(m)/EWA(d)/T/EWA(h)/EWA(1) JKT/WW/JW/JWD/WE/JT
 ACC NR: APO011966 SOURCE CODE: UR/0281/65/000/002/0158/0159

AUTHOR: Alad'yov, I. T.; Aleksandrov, B. K.; Baum, V. A.; Golovina, Ye. S.;
 Gol'denberg, S. A.; Zhimerin, D. G.; Zakharin, A. G.; Iyevlov, V. N.; Knorro, V. G.;
 Kozlov, G. A.; Loont'yova, Z. I.; Markovich, I. N.; Meyerovich, E. A.; Kikhnovich, G. V.;
 Popkov, V. I.; Popov, V. A.; Prodvidtsov, A. S.; Pyatnitskiy, L. N.; Styrikovich,
 N. A.; Tolstoy, Yu. G.; Tsukhanova, O. A.; Chukhanov, Z. F.; Sheyndlin, A. Ye.

ORG: none

TITLE: Lev Nikolayevich Khitrin

SOURCE: UR SSSR. Izvestiya. Energetika i transport, no. 2, 1965, 158-159

TOPIC TAGS: academic personnel, physics personnel, combustion, carbon, high temperature research, plasma beam, fuel

ABSTRACT: Professor L. N. Khitrin Corresponding Member, Academy of Sciences USSR, State Prize Laureate, and Doctor of Engineering Sciences, died after a short but severe illness at the age of 58. He was well known here and abroad as an outstanding scientist and specialist in the field of combustion theory and the development of methods for speeding up burning of fuel. He began his scientific work at the All-Union Heat Engineering Institute after graduating from the physics department of Moscow University in 1930. His early work was on the propagation of flames in gases, and on heterogenous combustion. In 1948 he defended his Doctor's Dissertation on the theory of combustion of car-

UDC: 621.036:92

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ACC NR: AP6011966

bon. His monograph "Combustion of Carbon" was awarded the State Prize in 1950. In 1951 he became the permanent director of the laboratory for the intensification of combustion processes of the G. M. Krzhizhanovskiy Power Institute. He was elected a corresponding member of the Academy of Sciences USSR in 1953. He headed the All Union Advisory Board on combustion, represented Soviet science at International Symposia, and was a member of the International Institute of Combustion. For a number of years, he directed the Moscow general seminar on combustion, and took an active part in the work of the Scientific Council of the Academy of Sciences USSR, on high temperature heat physics, and of the scientific council on the comprehensive utilization of fuel. He devoted a large amount of attention to teaching work. He directed the Combustion Division of the Physics Department of Moscow State University. His monograph "Physics of Combustion and Explosion" (1957) is a basic text for students in this field. Three Doctor's Dissertations and fifteen Candidate Dissertations were defended under his direction. In the last years of his life he directed work on methods for comprehensive utilization of fuel at power stations so as to obtain valuable products from the mineral part of the fuel, as well as work on the physical chemical processes in a plasma stream, and the mechanism of interaction between carbon and gases. He was the author of more than 60 scientific works, for which he was awarded the Order of the Red Banner of Labor and medals. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 21, 20 / SUEM DATE: none

Card 2/2 *plc*

KOROSTELEV, V.M., inzh.; CHALENKO, I.D., inzh.; KOZLOV, G.M., inzh.

Micella preconcentrator at the Georgiyevsk Oil Extraction Plant.
Masl.-zhir.prom. 25 no.12:38-39 '59. (MIRA 13:4)

1. Georgiyevskiy maslozavod.
(Georgiyevsk--Oil industries--Equipment and supplies)

85531

s/032/60/026/011/021/035
B004/B067

18.8200

AUTHOR:

Kozlov, G. M.

TITLE:

Study of Strength and Plastic Properties of Metals by the Impact Test

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 11, pp. 1284-1288

TEXT: The author describes a series of devices for testing the properties of metals at a 4 to 800 m/sec impact velocity. 1) A pendulum machine for velocities of 4 - 6 m/sec. 2) A pneumatic device for velocities of 15 - 50 m/sec which is schematically shown in Fig. 2. 1: frame, 2: cylinder with piston 3 and piston rod 4 into which dynamometer 5 is fitted, 6: test specimen which is fixed between dynamometer 5 and crossbeam 7, 8: cylinder with compressed air, 9: pipe. The compressed air is pressed into the cylinder space above and below piston 3. The space below the piston is separated from the space of expansion 10 by a 0.4 mm thick brass membrane. 11: The membrane is opened by cutting edge 12. The piston upon which a unilateral pressure is exerted is pressed down, with crossbeam 7 hitting support 13 and being braked. 14: regulating screw for adjusting

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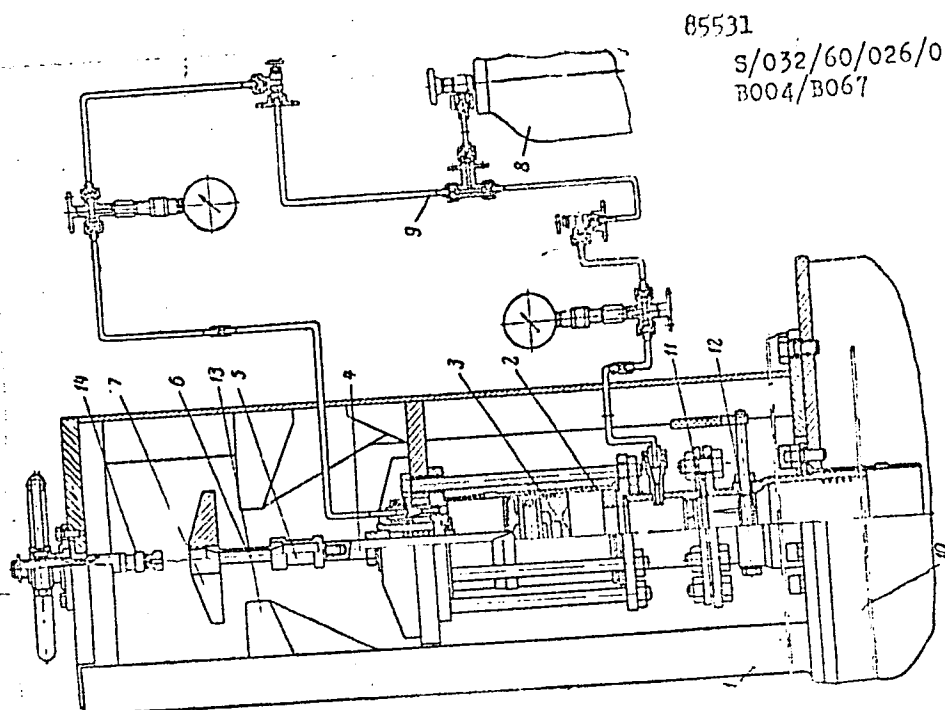
85531

Study of Strength and Plastic Properties
of Metals by the Impact Test

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the path of the piston. 3) Apparatus for velocities of 300 - 800 m/sec consisting, in principle, of a 12.7 mm machine gun with which the bullet is fired through the tube to be tested. The specimen is shock-loaded by means of a bullet receiver collecting the special lead bullets and transmitting their energy to the specimen connected with it. Various impact velocities can be produced by changing the charge in the cartridges. Measurement data are given for 30XH 2MA (30KhN2MA), 18XHBA (18KhNVA), 45XH (45KhN), and 40X (40Kh) steels. The different values of strength obtained with different impact velocities should be considered in designing steel constructions. There are 5 figures, 1 table, and 2 Soviet references. X

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Fig. 2.

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BELYAYEV, I.A., inzh.; KOZLOV, G.N., inzh.

Ways of modernizing pantographs. Elek.i tepl.tiaga 6 no.1:7-9 ja
'62. (MIRA 15:1)

(Electric railroads)

KOZLOV, G.N.

VK-1 computer and "Feliks" adding machine. Geod.i kart. no.5:61-62
My '61. (MIRA 14:6)
(Calculating machines)

KLIMENT'YEV, A.F.; KOZLOV, G.H.

Some investigations in the field of engineering geodesy.
Geod. i kart. no.9:67-69 S '61. (MIRA 14:9)
(Ukraine--Surveying)

KOZLOV, G.N.

Efficient way of drawing up topographic bases for planning.
Geod.i kart. no.1:71-75 Ja '63. (MIRA 16:2)
(City planning) (Topographic maps)

KOZLOV, N.S.; KOZLOV, G.N.

Catalytic amination of organic compounds. Part 4. Catalytic amination of mononitro compounds of the aromatic series. Zhur.ob.khim. 26 no.3:803-806 Mr '56. (MLBA 9:8)

1. Molotovskiy gosudarstvennyy pedagogicheskiy institut.
(Nitro compounds) (Amination)

L 12295-63

S/081/63/000/005/052/075

AUTHOR: Kozlov, G. N. and Agafonov, A. V. 44

TITLE: A study of the regeneration process of alumo-silicate cracking catalyst

PERIODICAL: Referativnyy zhurnal, Khimiya, no. 5, 1963, 500, abstract 5P156, (Tr. Vses. n.-i in-t, po pererabotke nefli i gaza i polucheniyu isskust-b. zhidk. topliva, no. 8, 39-53) 1962

TEXT: Investigation of the regeneration process of alumosilicate catalysts by air in the temperature range of 500-680°C was conducted on laboratory apparatus with 15 g capacity of the reaction tube for catalyst. Upon introduction of air at a rate of 70 l/hr the regeneration gases were purified from moisture, the CO was oxidized to CO₂ and the latter was absorbed by ascarite. The results of this operation may be judged from the rate of formation of CO and CO₂. The investigation was conducted under kinetic as well as diffusion areas of reaction path, temperature limits of which were previously determined. Catalysts with wide spaced pores and large internal surfaces are easier to regenerate. The rate of regeneration depends on the nature, the chemical composition and the structure of the catalysts. In this process the effect of structural characteristics of the catalyst are

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L 12295-63

S/081/63/000/005/052/075

A study of the regeneration

manifested mainly in the diffusion area. A catalyst which is coked in cracking of petroleum is easier to regenerate than one used in cracking light or heavy sulfur-containing raw materials. The use of this method is proposed for standard determination of the regenerative characteristics of granular alumo-silicate catalysts, with measurement of speed of the process at two temperatures, corresponding to the kinetic and diffusive areas of the reaction path. The article contains a 25-item bibliography. V. Kel'tsev.

Abstractor's note: Complete translation

Card 2/2

KOZLOV, N.S.; KOZLOV, G.N.

Action of piperidine on β -arylamino ketones. Zhur.ob.khim.
32 no.8:2428-2431 Ag '62. (MIRA 15:9)
(Piperidine) (Ketone)

KOZLOV, N.S.; KOZLOV, G.N.

Addition of piperidine and morpholine to chalcones. Zhur.ob.khim.
33 no.7:2184-2188 J1 '63. (MIRA 16:8)
(Piperidine) (Morpholine) (Chalcone)

KRICH, E.V., inzh.; SIMANOVSKIY, M.A., kand.ekon.nauk; LOZLOV, G.P., otv.
za vypusk; BOBROVA, Ye.N., kand.tekhn.nauk

Brief instructions on organization and planning methods for routing
normal freight traffic flows. Inform.list.Glav.gruz.upr. no.15:
4-39 '59. (MIRA 14:5)

1. Glavnoye gruzovoye upravleniye Ministerstva putey soobshcheniya
(for Krich). 2. Vsesoyuznyy nauchno-issledovatel'skiy institut
zheleznodorozhnogo transporta Ministerstva putey soobshcheniya
(for Simanovskiy).
(Railroads--Traffic) (Railroads--Freight)

VASILEVSKIY, M.E., prof.; KOZLOV, G.S.

Ballistocardiographic investigation in rheumatic fever. Vrach. delo
no.9:16-19 S '60. (MIRA 13:9)

1. Klinika gospital'noy terapii (zav. - prof. M.E. Vasilevskiy)
Yaroslavskogo meditsinskogo instituta.
(RHEUMATIC FEVER) (BALLISTOCARDIOGRAPHY)

DORMIDONTOV, Ye.N.; KOZLOV, G.S. (Yaroslavl')

Ballistocardiographic examinations of practically healthy
persons. Kaz.med.zhur. no.1:63-64 Ja-F'63. (MIRA 16:8)
(BALLISTOCARDIOGRAPHY)

KOZLOV, G.S.; TYNANOVA, Ye.L.

Cardiovascular system in rheumatic patients treated with ACTH
and steroid hormones. Vrach. delo no.7: 12-16 J1'63.

(MIRA 16:10)

1. Kafedra gospital'noy terapii (zav. - prof. M.E.Vasilevskiy)
Yaroslavskogo meditsinskogo instituta.
(RHEUMATIC HEART DISEASE) (ACTH) (STEROID HORMONES)

KOZLOV, G.S.

Clinical significance of the analysis of the heart contraction
phase in rheumatic fever. Terap. arkh. 35 no.5:71-78 My'63
(MIRA 16:12)

1. Iz kafedry gosital'noy terapii (zav. -- prof. M.E. Vasilevskiy)
Yaroslavskogo meditsinskogo instituta.

KOZLOV, G.S.

Functional state of the myocardium in a primary attack of
rheumatic fever and in chronic tonsillitis according to
ballistocardiographic data. Terap. arkh. 34 no.10:64-69
0*62 (MIRA 17:4)

1. Iz kafedry gospiatal'noy terapii (zav. - prof. M.E.
Vasilevskiy) Yaroslavskogo meditsinskogo instituta.

KOZLOV, G.S.

Abdominal syndrome in rheumatic fever. Sov. Med. 26 no.9:
25-30 S '62. (MIRA 17:4)

1. Iz kafedry gosptal'noy terapii (zav. - prof. M.B. Vasilevskiy)
Yaroslavskogo meditsinskogo instituta

GORELKINSKIY, Yu.V.; GRINMAN, I.G.; KOZLOV, G.S.

Differential electronic polarograph. Zav.lab. 26 no.9:1141-1143
'60. (MIRA 13:9)

1. Institut yadernoy fiziki Akademii nauk Kazakhskoy SSh.
(Polarograph)

AUTHORS: Grinman, I. G., Kozlov, G. S.
(Alma-Ata)

S/076/60/034/03/026/038
B005/B016

TITLE: On the Separation of the Faraday Current From the Capacitance Current in Differential Polarography ¹

PERIODICAL: Zhurnal fizicheskoy khimii, 1960, Vol 34, Nr 3, pp 661-664 (USSR)

TEXT: The capacitance current represents a considerable hindrance when alternating voltage is used in polarography. When an alternating voltage $U = E \cdot \sin \omega t$ is applied to a polarographic cell a capacitance current $I_C = -j\omega C_e E$ (1) is formed. [←]

(C_e - capacity of the electrode which is polarized. C_e is between 20 and 40 $\mu\text{f}/\text{cm}^2$).

The capacitance current is superimposed onto the Faraday current in the loading resistance which is measured. The Faraday current is limited by the sum of the diffusion impedance Z_D and the reaction resistance R_K :

$$Z_D = \frac{RT}{n^2 F^2 s C} \sqrt{\frac{2}{D \omega}}, \quad R_K = \frac{RT}{n^2 F^2 s C} \frac{1}{k} \quad (s - \text{surface of the electrode; } C - \text{con-}$$

centration of the substance to be determined on the surface of the electrode;

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On the Separation of the Faraday Current
From the Capacitance Current in Differential
Polarography

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k - rate constant of the reaction). Equation (4) is written down for the total current I which flows through the electrolyzer, considering the loading resistance R_p . This loading resistance R_p includes also the resistances of the electrolyte and of the current sources. Figure 1 shows the calibration curves of the dependence of current strength I on the concentration C at different loading resistances. It may be seen from these curves that, when using alternating voltage in polarography, high sensitivities can only be obtained if the Faraday current can be measured irrespective of the capacitance current. By applying a constant potential to the electrode the capacitance current decreases exponentially (and thus rapidly), whereas the Faraday current decreases more slowly. If an alternating voltage of the rectangular type is applied to the electrolyzer and measurement is carried out only at the end of each half-period, the capacitance current is eliminated practically completely. This method of separation may be realized by means of a commutator (Ref 3) or a special electronic scheme (Ref 4). In the latter case the sensitivity of the usual polarographic method could be exceeded by two decimal powers. A disadvantage of this method is that it requires very complicated devices. Considering

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On the Separation of the Faraday Current
From the Capacitance Current in Differential
Polarography

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this circumstance, the authors investigated simpler methods for separating the capacitance current, among them the two-frequency method and the phase method. The principle of the two methods is described. The simplest of these methods is the phase method. The phase of the Faraday current is shifted by an angle of between 0 and 45° with respect to the voltage applied, according to the ratio between R_K and Z_D , whereas the phase of the capacitance current is shifted by 90° with $R_B = 0$. When using a phase sensitive electronic measuring scheme (Ref 5), the Faraday current may be measured irrespective of the capacitance current. Figure 2 gives the calibration curves of the dependence of current strength I on the concentration C , for the use of the phase method; figure 3 shows a comparison of the three methods mentioned for the dependence of the capacity current left after separation on the loading resistance for $C = 0$, $C_e = 0.4 \mu f$. The method of the rectangular voltage is found to yield the best characteristics. For practical purposes, however, the phase method is recommended, for which only 4 electron tubes are necessary. A description of the device and some results are at present prepared for publication. There are 3 figures and 5 references, 4 of which are Soviet.

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On the Separation of the Faraday Current
From the Capacitance Current in Differential
Polarography

S/076/60/034/03/026/038
B005/B016

SUBMITTED: August 30, 1958

Card 4/4

KOZLOV, G.S.; MILONOV, V.M.; DERESHKEVICH, Yu.V.; BUKHARIN, Ye.V.

New heat-resisting ferroconcrete lining for a methane converter.
Khim.prom. no.5:377-379 My '62. (MIRA 15:7)
(Methane) (Converters)

ACCESSION NR: AT4042419

S/0000/63/000/000/0043/0045

AUTHOR: Shostak, F. T.; Vittikh, M. V.; Savel'yeva, G. A.; Kozlov, G. S.
Malinovskiy, L. S.

TITLE: The Influence of ultrasound on the kinetics of ion exchange

SOURCE: Respublikanskoye nauchno-tekhnicheskoye soveshchaniye po ionnomu obmenu. Alma-Ata, 1962. Teoriya i praktika ionnogo obmena (Theory and practice of ion exchange); trudy* soveshchaniya. Alma-Ata, Izd-vo AN KazSSR, 1963, 43-45.

TOPIC TAGS: ion exchange, ion exchange kinetics, ultrasound, cation exchange resin, anion exchange resin, resin regeneration

ABSTRACT: An UZGI-1.5 ultrasonic generator in an auto-exciting circuit with three GU-80 tubes fed without rectifying directly from a three-phase a.c. grid was used in a study of the effects of ultrasound on ion exchange in an acid cation exchange resin (KU-21) and two alkaline anion exchange resins (EDE-10P and AN-1). The H form of the cation exchange resin, and the OH form of the anion exchange resins in 1.0 and 0.1 N aqueous solutions of KOH or 1.0, 0.1 and 0.01 N aqueous solutions of hydrochloric acid, respectively were exposed to ultrasound for 3, 7, 15, 25 and 45 minutes with an intensity of 3.0 w/cm² at room temperature. The tests generally showed that imposition of an ultrasonic field intensifies ion exchange in the initial stage, especially in the first 3-15 min. The effect of the field

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ACCESSION NR: AT4042419

depends largely on the properties of the resin and the concentration of the solution. Regeneration of the AN-1 resin by 5% Na₂CO₃ was accelerated almost 3.3 fold by ultrasound. Orig. art. has: 3 figures.

ASSOCIATION: Institut khimicheskikh nauk AN KazSSR (Institute of Chemical Sciences, AN KazSSR); Kazgipromishcheprom

SUBMITTED: 13Nov63

ENCL: 00

SUB CODE: GC

NO REF SOV: 001

OTHER: 007

Card 2/2

GRINMAN Isaak Grigor'yevich. Prinipali uchastiye: SAKBAYEV, Zh.M.;
BLYAKH, G.I.; SHAGI-SULTAN, I.Z.; SIRAZUTDINOVA, Zh.A.;
SHTEYN, N.S.; YERMAGAMETOV, S.B.; KOZLOV, G.S. [deceased];
IVANOV, L.G.; OSHCHENSKIY, V.M.; DZHALYBKOVA, E.R.;
NURGALIYEVA, Kh. PRESNYAKOV, A.A., doktor tekhn. nauk,
otv. red.; ALEKSANDRIYSKIY, V.V., red.

[Automation of nonferrous metal ore dressing processes]
Avtomatizatsiia protsessov obogashchenia rud tsvetnykh me-
tallov. Alma-Ata, Izd-vo AN Kaz.SSR, 1964. 213 p.

(MIRA 17:10)

1. Laboratoriya elektroniki i avtomatiki Instituta yadernoy
fiziki AN Kaz.SSR (for all except Grinman, Presnyakov,
Aleksandriyskiy).

BURDINA, V.F.; KOZLOV, G.T.; GROMOV, V.P.

Method of programmed accounting for crystal structure in
refining structural parameters using an electric digital
computer. Zhur. strukt. khim. 6 no.1:141-152 Ja-F '65.

(MIRA 18:12)

1. Vychislitel'nyy tsentr Sibirskogo otdeleniya AN SSSR,
Novosibirsk. Submitted June 26, 1963.

KOZLOV, G. V.

USSR/Flotation
Ore Dressing

Mar/Apr 47

"The Role of Chips in Flotation," V. M. Arashkevich, G. V. Kozlov, Mekhanobr, Sverdlovsk, 1 p

"Tsvetnye Metally" No 2

Short discussion of the effect of chips in ores during the concentration process. The presence of chips causes mechanical difficulties in the plant, absorption of the useful metals, and destruction of the flotation process, especially the process of selective flotation.

PA 28^T53

KOZLOV, G.V.

Getting familiarized with the diagram of selective copper-zinc
flotation at the Karabash Ore Dressing Plant. TSvet. met. 29
no.8:1-4 Ag '56. (MLBA 9:10)

1. Uralmekhanobr.
(Karabash--Ore dressing) (Copper ores) (Zinc ores)

KOZLOV, G. V.

137-58-5-8754

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 4 (USSR)

AUTHOR: Kozlov, G. V.

TITLE: Development of a Technique for Extraction of Zinc Concentrates from Low-grade Copper-zinc Ores of Levikha Deposits (Praktika osvoyeniya tekhnologii polucheniya tsinkovykh kontsentratov iz bednykh medno-tsinkovykh rud Levikhinskogo mestorozhdeniya)

PERIODICAL: Byul. tsvetn. metallurgii, 1957, Nr 11-12, pp 38-41

ABSTRACT: Up to 1955, the Kirovograd concentrating plant processed impregnated ores of Levikha deposits in accordance with a system involving collective flotation of all sulfides followed by additional crushing and separation of the concentrate into pyrite and copper fractions. In May of 1955, a system was set up which yielded Cu and FeS₂ and a Cu-Zn product. A system was organized in which sulfide ores were processed separately, the Cu concentrate and the FeS₂ product being separated in the form of copper-flotation tailings. Several systems for additional crushing of collective concentrates were tested under industrial conditions. The system found to be most effective involved the charging of collective concentrates into hydrocyclones with subsequent

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137-58-5-8754

Development of a Technique for Extraction of Zinc Concentrates (cont.)

crushing of sands from the hydrocyclones and from spiral classifiers by means of a ball mill and, finally, channeling the output of both these units into the copper flotation process. Additional crushing must be performed in a neutral or a weakly alkaline medium, whereas copper flotation must take place in a calcareous medium (150-300 g of free CaO per m³ of pulp solution). Optimal consumption of depressants (75-80 percent for the crushing process and 20-25 percent for the additional refining of Cu concentrate) consists of 600-800 g of NaCN per ton of ore, and 800-1000 g/t of ZnSO₄. Best results in separating ZnS from FeS₂ are achieved in an alkaline medium containing up to 1000 g of free CaO per cubic meter of pulp. Consumption of CuS₄ varies from 350 to 75-100 g/t, that of butyl xanthogenate and butyl frother amounts to 15-25 g/t, and that of flotation oil to 10-20 g/t.

A. Sh

1. Copper-zinc ores--Processing 2. Zinc ores--Separation 3. Ores--Flotation

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KOZLOV, G.V.

Dressing complex ores in plants without using pumps. Biul. TSIIN
tsvet. met. no.4:18-19 '58. (MIRA 11:5)
(Flotation--Equipment and supplies)

KOZLOV, G.V.

Improving the quality of pyrite concentrates dressing yellow
copper ores. Biul. TSIN tavet. met. no. 11:10-13 '58. (MIRA 11:7)
(Pyrites)
(Copper--Metallurgy)

KOZLOV, G.V.

Collective and selective flotation of complex copper-zinc
ores. TSvet.met. 33 no.1:13-16 Ja '60.
(MIRA 13:5)

1. Ural'skiy nauchno-issledovatel'skiy institut mekhanicheskoy
obrabotki poleznykh iskopayemykh.
(Flotation) (Nonferrous metals)

KOZLOV, G.T.; BENIN, I.V.

Bilateral congenital synostosis of the radius and ulna. Zdrav.Bel.
8 no.5:57 My '62. (MIRA 15:10)

1. Iz khirurgicheskogo otdeleniya Ruzhanskoy rayonnoy bol'nitsy
(glavnyy vrach - zasluzhennyy vrach BSSR F.A.Marinich).
(ANKYLOSIS)

KOZLOV, G.V.

Dressing of Gay deposit ores. TSvet. met. 35 no.11:30-35 N
'62. (MIRA 15:11)
(Gay region (Orenburg Province)--Nonferrous metals)
(Ore dressing)

KOZLOV, G. V.

Economic Conditions

General crisis of capitalism and its aggravation in the present period. Vop. ekon.
No. 4 1952.

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

KOZLOV, G

V

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OBSHCHIY KRIZIS MIROVOY KAPITALISTI-CHESKOY SISTEMY I YEGO OBOSTRENIYE V
POSLEVOYENNY PERIOD. MOSKVA, IZD-VO ZNANIYE, 1953.

46 P. TABLES (VSESOYUZNOYE OBSHCHES-TVO PO RASPROSTRANENIYU POLITICHESKIKH
I NAUCHNYKH ZNANIY. 1953, SERIYA 2, NO. 3)

RUSSIA

KOZLOV, G V

1
782
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Tovar i Den'gi pri kapitalizme (Goods and money in capitalism) Moskva,
Gosnolitizdat, 1954.

119 P.

Bibliographical footnotes.

KOZLOV, G.V.

The structure of the economics course. Vop.ekon. no.3:89-96
Mr '59. (MIRA 12:5)
(Economics--Study and teaching)

VOTAKH, O.A.; KOZLOV, G.V.; MESSINEV, A.Yu.; MIKUTSKIY, S.P.

New data on the Pre-Cambrian of Turukhansk District. Dokl. AN
SSSR 162 no.5:1123-1126 Je '65. (MIRA 18:7)

1. Institut geologii i geofiziki Sibirskogo otdeleniya AN SSSR i
Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i
mineral'nogo syr'ya. Submitted December 7, 1964.

VORONIN, G.M.; KOLICOV, G.V.

Angular unconformities at the boundary of the Cambrian and Pre-Cambrian of the Turukhansk region. Geol. i geofiz. no.7:109-111 '85.
(MIRA 1810)

1. Institut geologii i geofiziki Sibirskogo otzleniya AN SSSR i Sibirskiy nauchno-issledovatel'skiy institut geologii, geofiziki i mineral'nogo syr'ya, Novosibirsk.

KOZLOV, G.Z.

Maximum capacity, minimum weight. Znan. sila 35 no. 12:4-5
D '60. (MIRA 13:12)
(Oil well pumps)

KOZLOV, I.

Methodological committees and mechanization. Prof.-tekh. ~~otd.~~ 18
no.1:11 Ja '61. (MIRA 14:2)

1. Zaveduyushchiy metodicheskim kabinetom uchilishcha mekhanizatsii
sel'skogo khozyaystva, Dnepropetrovskaya oblast'.
(Dnepropetrovsk Province--Vocational education)

KOZLOV, I.; GREYDINGER, K.

Model for the solution of mechanical drawing problems. Prof.-tekh. obr.
20 no.3:17 Mr '63. (MIRA 16:3)
(Mechanical drawing—Audio-visual aids)

KOZLOV, I.

Seminar on the fundamentals of automation. Prof.-tekhn.obr. 19
no.11:16 N '62. (MIRA 16:2)

1. Zaveduyushchiy Dnepropetrovskim uchebno-metodicheskim
kabinetom.

(Automation--Study and teaching)

KOZLOV, I., nachal'nik.

Health resorts of Soviet trade-unions. Prof.soluzy 8 no.7:13-19 J1 '53.
(MLRA 6:6)

1. Tsentral'noye upravleniye kurortov, sanatoriyev i domov otdykha Vsesoyuznogo tsentral'nogo soveta profsoyuzov. (Health resorts, Watering places, Etc.)

KOZLOV, I.

Strictly observe the system for determining and paying social insurance compensation. Sov.profsoiuzy 3 no.11:35-39 N '55.

(MLRA 9:1)

1.Zaveduyushchiy otdelom Vsesoyuznogo TSentral'nogo Soveta professional'nykh soyuzov po gosudarstvennomu sotsial'nomu strakhovaniyu.
(Insurance, Social)

KOZLOV, I.

The law on government pensions and the tasks of trade unions. Sov.
profsoiuzy 4 no. 7:8-15 J1 '56. (MLRA 9:10)

1. Zaveduyushchiy Otdelom Vsesoyuznogo Tsentral'nogo Soveta profes-
sional'nykh soyuzov.
(Insurance, Social) (Trade unions)

KOZLOV, I.

Garrying out the collective agreement. Sov. profsoiuzy 5 no.5:52-56
Mv '57. (MIRA 10:6)

1. Zamestitel' zaveduyushchego zhilishchno-bytovym otdelom Ukrainского
respublikanskogo komiteta profsoyuza rabochikh chernoy metallurgii.
(Krasnogorovka--Firebrick)

KOZLOV, I.; BATYGIN, K.

Exchange of experience with Rumanian friends. Sov.profsoiuzy 5
no.12:75-77 0 157. (MIRA 10:11)
(Rumania--Social insurance)

KOZLOV, I.

Continue the improvement of the state social insurance system.
Okhr. truda i sots. strakh. no.1:54-59 JI '58. (MIRA 11:12)

1. Zaveduyushchiy otdelom Vsesoyuznogo tsentral'nogo soveta
profsoyuzov po gosudarstvennomu sotsial'nomu strakhovaniyu.
(Trade unions) (Social insurance)

KOZLOV, I.

Health budget of workers. Sov. profsoiuzy 6 no.3:13-17 Nr '58.

(MIRA 11:3)

1. Zaveduyushchiy otdelom Vsesoyuznogo tsentral'nogo soveta prof-
soyuzov po gosudarstvennomu sotsial'nomu strakhovaniyu.
(Insurance, Social) (Trade unions)

KOZLOV, I.

This is the way to show concern for the people. Okhr.truda i
sots.strakh. no.10:28-31 O '59. (MIRA 13:2)

1. Chlen prezidiuma Dnepropetrovskogo obkoma profsoyuza
rabochikh metallurgicheskoy promyshlennosti.
(Manganets Region (Ukraine)--Mining Engineering--Hygienic aspects)

KOZLOV, I.

Everything for the man and for his good. Okhr.truda i sots.
strakh. 3 no.4:17-20 Ap '60. (MIRA 13:6)

1. Zavednyushchiy otdelom Vsesoyuznogo tsentral'nogo soveta
profsoyuzov po gosudarstvennomu sotsial'nomu strakhovaniyu.
(Labor and laboring classes--Medical care)

KOZLOV, I.

Our sanitariums should be the best. Sov.profsoiuzy 16 no.16;
31-33 Ag '60. (MIRA 13:8)

1. Nachal'nik Tsentral'nogo kurortnogo upravleniya profsoyuzov.
(Health resorts, watering places, etc.)

KOZLOV, I.

The today and tomorrow of our resorts. Sov. profsioazy 12
no.1:36-37 Ja '62. (MIRA 15:2)

1. Nachal'nik Tsentral'nogo kurortnogo upravleniya profsoyuzov.
(Health resorts, Watering places, etc.)

KOZLOV, I.

"Soldiers are made, not born." Komm. Vooruzh. Sil 4 no.15:
87-91 Ag '64. (1107 17 10)

ACC NR: AP7001229

(A,N)

SOURCE CODE: UR/0401/66/000/012/0031/0031

AUTHOR: Shovkun, I. (Engineer; Lieutenant colonel); Kozlov, I. (Senior sergeant; Re-enlisted service)

ORG: none

TITLE: Bombs are hoisted faster [Bomb loading dolly]

SOURCE: Starshina-serzhant, no. 12, 1966, 31

TOPIC TAGS: ordance, bomb carrier, bomb handling device, bomb hoist, bomb truck

ABSTRACT: A lot-produced bomb-loading dolly has been modified by the addition to its movable frame of a 130-mm channel-beam, inverted U-shaped attachment (see Fig. 1). This modification greatly accelerates and simplifies the loading of bombs. In the transport position, the bomb rests on supports. When the movable frame is raised,

Card 1/3

ACC NR: AP7001229

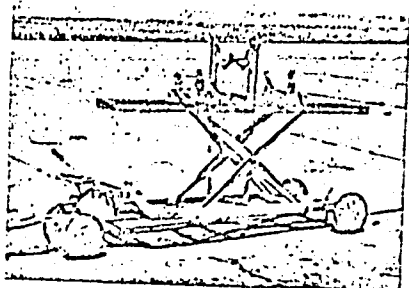
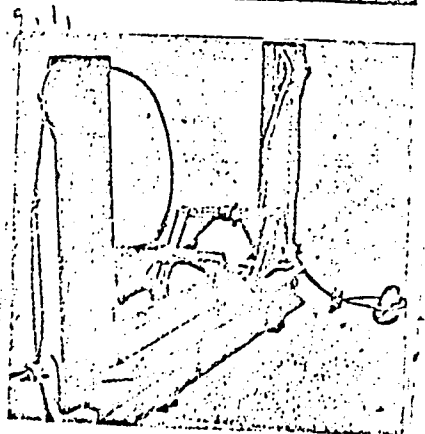


Fig. 1. Dolly for loading bombs.



Card 2/3

ACC NR: AP7001229

the bomb is lifted 10—15 cm and hangs on a cable rocker, from which position it can easily be shifted in any given direction. Orig. art. has: 2 figures. [WS]

SUB CODE: 19/ SUBM DATE: none/ ATD PRESS: 5110

Card 3/3

KOZLOV, I.A.; SHABLINA, A.G.

Quantitative method for determining free alkali in the presence of organic bases and alkali metal alcoholates. Trudy NIISZHIMSa no.3:23-25 '62. (MIRA 16:12)

1. Filial Nauchno-issledovatel'skogo instituta sinteticheskikh zhirozameniteley i moyushchikh sredstv (NIISZhIMS).

KOZLOV, I.A., inzh.; SHABLINA, A.G., inzh.

Evaluation of the catalytic activity of the alcoholate of monoethanolamine.
Masl.-zhir.prom. 29 no.2:22-23 F '63. (MIRA 16:4)

1. VNIISINZh. (Ethanolamine) (Catalysis)

KOZLOV, I. A.

PA 75T62

USSR/Medicine - Dysentery, Bacilli Apr 1948
Medicine - Drugs

"Effectiveness of Gramicidin When Administered in
Conjunction With Sulfonamide Preparations in the
Treatment of Bacillary Dysentery," A. I. ^BDaldina
and I. A. Kozlov, Clinical Sector, Inst of Malaria,
Med Parasitol and Helminthol, Acad Med Sci USSR, and
Sec on Infection, Bakinsk Garrison Hosp, No 370, 2pp

"Sov Meditsina" No 4

Use of combined treatment greatly speeds up recovery.
Gramicidin C also speeds up regeneration and epithe-
lization of dysenteric ulcers in kidneys. There are
no adverse aftereffects from administration of
Gramicidin C.

75T62

DOBROVINSKIY, R.N.; KOZLOV, I.A.; LEVINSON, A.I.*.

Carrying of dysentery bacteria by healthy persons. Zhur.mikrobiol.
no.3:29-31 Mr '55. (MLRA 8:7)

(DYSENTERY, BACILLARY, transmission,
carriage without clin. manifest.)

KOZLOV, I.A., podpolkovnik meditsinskoy sluzhby

Etiology and clinical aspects of acute hemolytic anemia. Voen-med.
zhur. no.1:70-71 Ja '56 (MLRA 10:5)
(ANEMIA, HEMOLYTIC,
etiol. & elin. aspects) (Rus)

KOZLOV, I.A.

History of the spread of brucellosis in Byrka District, Chita Province.
Tez. i dokl.konf.Irk.gos.nauch.-issl.protivochn. inst. no.2:27-28
'57. (MIRA 11:3)

(BYRKA DISTRICT--BRUCELLOSIS)

KOZLOV, I.A.

Diffusion of brucellosis in the Byrka District of Chita Province.

Izv.Irk.gos.nauch.-issl.protivochum.inst. 20:153-160 '59.

(MIRA 13:7)

(BYRKA DISTRICT (CHITA PROVINCE)--BRUCELLOSIS)

KOZLOV, I.A.; LEBEDEV, I.V.

Experimental investigation of the stress condition beyond the plastic limit. Zav. lab. 29 no.9:1125-1127 '63. (MIRA 17:1)

1. Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR.

BAZHENOV, V.G., inzh.; KOSILOV, J.A., kand. tekhn. nauk

Using strain gauges for determining stressed state in concentration
areas. Mashinostroenie no.5:90-92 S-L 165. (MIRA 18:9)

KOZLOV, I.A. (Kiyev)

Investigating the carrying capacity of structural components in the area of very small elastoplastic deformations. Prikl. mekh. l no.4:44-48 '65. (MIRA 18:6)

1. Institut problem materialovedeniya AN UkrSSR.

KOZLOV, I. A., Cand Tech Sci -- (diss) "Experimental investigation of the supporting capacity of rotor elements of a turbine." Kiev, 1960. 13 pp with figures; (Ministry of Higher and Secondary Specialist Education Ukrainian SSR, Kievskiy Order of Lenin Polytechnic Institute); 200 copies; price not given; (KL,19-60,134)

83852

S/114/60/000/009/006/007
E191/E481

26.4410

AUTHOR: Kozlov, I.A., Engineer

TITLE: Investigation of the Load Carrying Capacity of Discs²⁶
Made of Brittle Materials

PERIODICAL: Energomashinostroyeniye, 1960, No.9, pp.35-37

TEXT: The strength criterion used at present for rotating discs is based on the assumption of a uniform distribution, due to plastic deformation of the tangential stresses at the bursting speed. This mean tangential stress at failure is equal to the ultimate tensile strength. Previous tests carried out at the TsNIITMASH with discs of ductile materials have shown that eccentric holes do not reduce the strength by stress concentration. To examine the strength of discs made of brittle materials, tests were carried out with cast iron, "Perspex" and sintered metal, some with central holes and others with eccentric holes. A special bursting test rig permitting high speeds was employed. Of the 5 cast iron discs, 3 had a central hole only and 2 had only eccentric holes. A very brittle grey cast iron was used and the elongation at failure was found to be practically zero. Specimens for tensile tests and for investigating the notch sensitivity of the material were made from the same melts. Ultrasonic inspection
Card 1/3

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S/114/60/000/009/006/007
E191/E481

Investigation of the Load Carrying Capacity of Discs Made of Brittle Materials

showed no defects in the material. The first three discs had a bore of 25 mm, an outside diameter of 340 mm and a thickness of 23 mm. They were mounted loosely on the shaft and bonded with bakelite lacquer as well as clamped lightly between two washers. The remaining disc has the same outside diameter but a thickness of 20 mm and three 12 mm diameter holes equally spaced on a pitch circle of 155 mm which were used for attaching the disc to a flange mounted on the shaft. The discs were run at 10000 rpm during 8 minutes and then speeded up further in steps of 1000 rpm until failure. The test results show that the tangential maximum stresses at failure computed from analytical formulae and, in particular, the maximum stresses in the regions of stress concentration for the discs with eccentric holes, always exceed the ultimate tensile strength of the material by a factor of about 1.4 in the disc with a central hole and 1.56 in the disc with eccentric holes, referred to the theoretical maximum stress. In the latter case the actual maximum stress, taking account of the notch insensitivity of the material, was only 12 to 20% larger than Card 2/3

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S/114/60/000/009/006/007
E191/E481

Investigation of the Load Carrying Capacity of Discs Made of Brittle Materials

the ultimate tensile strength. Ultrasonic inspection¹⁴ showed that about 1000 to 1500 rpm below the failure speed, cracks appeared in the central most highly loaded part of the disc or at the stress concentration points. In prolonged operation of the discs or under repeated starts, a gradual development of cracks may be expected and failure could take place at a lower speed than in the tests reported. Tests with "Perspex" discs were evaluated in the same manner. They burst when the stress at the stress concentration point reached approximately the ultimate tensile strength. The difference is explained by the greater notch sensitivity of the material, such that the effective and theoretical stress concentration factors are usually equal. A sintered material on a silicon carbide base was also tested which has no ductility at all and a large degree of notch sensitivity. The maximum tangential stress for these discs never exceeded the ultimate tensile strength by 10 to 20%. No cracks could be observed before failure. There are 3 figures, 2 tables and 6 references: 5 Soviet and 1 English.

Card 3/3

88216

26.2120

S/114/60/000/002/006/007
E194/E155

AUTHORS: Kozlov, I.A., Engineer, and Lebedev, I.V., Engineer

TITLE: Stress Investigation of Rotating Discs by Means of Strain Gauges

PERIODICAL: Energomashinostroyeniye, 1960, No. 2, pp. 40-41

TEXT: In order to correctly assess stresses in turbine discs of various shapes and having stress concentrators, it is very important to make actual measurements of stress and strain at high speeds. Tests with resistance strain gauges were made on a special speed-testing device on discs of steel grade ЭИ-415 (EI-415) of 340 mm external diameter, 20 mm thick. The disc had three holes of 16 mm diameter, spaced uniformly at a radius of 75 mm. Constantan strain gauges were attached to the disc along the directions of main stress, both radially and tangentially. Some strain gauges were placed near the holes. The method of fixing the strain gauges and the experimental set-up are described. The leads from the strain gauges to the measuring equipment were brought out through a 20-position mercury commutator. Mercury was chosen because its contact resistance is not much affected by vibration, which was in Card 1/3

X

88216

S/114/60/000/002/006.007
E194/E155

Stress Investigation of Rotating Discs by Means of Strain Gauges

any case diminished by connecting the device to the main shaft through a rubber tube. The tests were made by running the disc up to a certain speed which was held constant while the strain gauge readings were taken; the speed was then raised by a further thousand r.p.m. Prolonged operation at high speed raised the temperature of the disc and the commutator. The method of correcting for this by taking readings both at the start and at the end of the test is explained, also the method of calibrating the strain gauges. Fig.2 shows the relationship between the radial and tangential stresses and speed at various radii at parts remote from the holes. The influence of the holes as stress concentrators may be judged from the tabulated data which give strain in the disc at places near to and remote from the hole. Fig.3 shows graphs of total strains in the disc as function of the speed, based on strain data obtained at different points on the disc. It is concluded that the method may be used to measure stresses and strains directly in the disc rotating at speeds up to 18 000 - 20 000 r.p.m., which is still not the limit.

X

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88216

S/114/60/000/002/006/007

E194/E155

Stress Investigation of Rotating Discs by Means of Strain Gauges

Particular care must be taken to correct for heating of the disc and commutator.

There are 3 figures, 1 table and 4 Soviet references.

X

Card 3/3

32159 R

S/096/60/000/012/003/008

E194/E484

26.2120

AUTHORS: Kozlov, I.A. and Lebedev, I.V., Engineers

TITLE: An Experimental Investigation of the Elastic-Plastic Condition of Turbine Discs

PERIODICAL: Teploenergetika, 1960, No.12, pp.23-27

TEXT: In recent years, there have been a good many theoretical works on the calculation of the elastic-plastic condition of turbine discs but they only approximately represent the performance of the material because they are based on certain assumptions and have not been checked experimentally on discs. Accordingly, tests were made on discs using the tensiometric transducers developed by the authors to investigate the stress conditions of discs during elastic deformation. The strain gauges were made of constantan wire on paper and had a resistance of 170 ohms and a length of 20 mm. The method of calibrating the strain gauges is explained. The gauges became defective if the strain was greater than 1.7%. The discs tested are illustrated in Fig.2; in addition to the usual slots, they had three pressure equalizing holes and a central aperture for the shaft, they were made of steel grade ~~DA~~-415 (EI-415). The strain gauges were fitted at the edge of Card 1/5 ✓

32159 R

S/096/60/000/012/003/008

E194/E484

An Experimental Investigation . . .

the internal groove in the disc and at the edges of the eccentric holes where the greatest strain occurs on rotation. Special care is required in fitting strain gauges to discs running at speeds up to 14000 rpm. The tests were carried out on the special high-speed rig in the Institut metallokeramiki i spetsial'nykh splavov AN UkrSSR (Institute of Cermets and Special Alloys AS UkrSSR). The moving contacts of the thermocouples were through mercury baths. The electrical connection arrangements are illustrated diagrammatically in Fig.3. The instrumentation and necessary corrections are discussed. Graphs of tangential (ϵ_t) and radial (ϵ_r) strains on the disc at a radius of 31.5 mm are plotted in Fig.4. The hatched area corresponds to the elastic-plastic condition. theoretical strain curves assuming elastic conditions are shown by dotted lines. The theoretical curves were calculated by the following formulae

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An Experimental Investigation ...

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S/096/60/000/012/003/003
E194/E484

$$\sigma_t = \frac{3+\mu}{8} \cdot \frac{\gamma \omega^2}{g} \left(a^2 + b^2 - \frac{1+3\mu}{3+\mu} r^2 + \frac{a^2 b^2}{r^2} \right) +$$

$$+ \frac{\gamma \omega^2}{gb} \left[\frac{c^2 - b^2}{3} + \frac{h(e^2 - c^2)}{3\delta} \right] \frac{b^2}{b^2 - a^2} \left(1 + \frac{a^2}{r^2} \right);$$

$$\sigma_r = \frac{3+\mu}{8} \cdot \frac{\gamma \omega^2}{g} \left(a^2 + b^2 - r^2 - \frac{a^2 b^2}{r^2} \right) +$$

$$+ \frac{\gamma \omega^2}{gb} \left[\frac{c^2 - b^2}{3} + \frac{h(e^2 - c^2)}{3\delta} \right] \frac{b^2}{b^2 - a^2} \left(1 - \frac{a^2}{r^2} \right),$$

where $\mu = 0.3$ is Poisson's coefficient; $\gamma = 7.85 \times 10^{-3}$ kg/cm³ with specific gravity of the material; ω - the angular speed of rotation; a - the internal radius of the disc; b - the external radius of the disc; c - the internal radius of the loading ring; e - the external radius of the loading ring; δ - the disc thickness; h - the thickness of the loading ring. ✓

In the region of elastic strain, calculated values of strain are in sufficiently good agreement with the experimental and the greatest

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12152
S/096/60/000/012/003/008
E194/E484

An Experimental Investigation ...

difference does not exceed 9%. The upper boundary of the elastic-plastic condition was determined on the basis of the theory of maximum tangential stresses and on this basis the following formula is derived for the critical speed.

$$v = \sqrt{\frac{3\gamma (b-a) \omega^2}{\gamma (\delta (c^2 - a^2) + h (e^2 - c^2))}}$$

p.
26

Above 9000 rpm, there was considerable increase in tangential strain as compared with the calculated values although the disc was still in the elastic condition. This is explained by the reference to the shape of the tension curve of the steel used. At a speed of about 12000 rpm, tangential strain of the disc at the place of test increases considerably and noticeable flow of the material commences. Fig.4 also shows, by a chain dotted line, the strain curve when unloading the disc. Fig.5 shows the relationship between the strain in the zone of stress concentration and the speed for a strain gauge located radially on the disc; it
Card 4/5

3215
S/096/60/000/012/003/003
E194/E484

An Experimental Investigation ...

also shows a line corresponding to the speed of the disc at which plastic strain commences at the edge of the hole. Evident flow of the material started at a speed of about 13000 rpm. The start of flow at the edge of the hole is indicated by a hatched line. Fig.5 also shows the unloading curve. There are 5 figures and 4 Soviet references.

ASSOCIATION: Institut metallokeramiki i spetsial'nykh splavov
AN UkrSSR (Institute of Cermets and
Special Alloys AS UkrSSR)

Card 5/5

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

[Carrying capacity of rapidly rotating disks]0 nesushchei sposobnosti bystro vrashchaiushchikhsia diskov. Kiev, Gos-tekhizdat USSR, 1962. 47 p. (MIRA 15:10)

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

(Disks, Rotating)

PHASE I BOOK EXPLOITATION

SOV/6067

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

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

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

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

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

Card 1/2

Some Problems of (Cont.)

SOV/6067

COVERAGE: The booklet reviews problems connected with the determination of the strength of the most loaded and important gas-turbine parts -- disk and blades. Methods of measuring temperatures and stresses are discussed and experimental units described. Particular attention is given to the investigation of disk beyond the yield point and blades under nonstationary condition. No personalities are mentioned. There are 101 references, mostly Soviet.

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Gas-dynamic stand	6
Stand for testing rotor parts in the centrifugal-force field	12
Methods of Investigating Temperature Fields and Stresses	15
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S/191/63/000/001/017/017
B117/B180

AUTHORS: Kozlov, I. A., Lebedev, I. V.

TITLE: Internal stresses arising in the production of bonded glass
mat parts

PERIODICAL: Plasticheskiye massy, no. 1, 1963, 74 - 75

TEXT: Two annealed constantan wire-type resistance strain gauges were placed perpendicular to each other on paper between the bonded glass layers, and immersed in phenol resin. Strains were measured in the plate during polycondensation (12 hrs at 135°C) and subsequent cooling. The temperature was checked by thermocouples close to the strain gauges. Their resistance was affected by the temperature and the shunt caused by the liquid resin. After appropriate corrections for the resulting errors, the following was found: Polymerization of the resin began at 80-85°C, accompanied by considerable separation of moisture; the resistance and sensitivity of the gauges decreased. As moisture separation diminished and the resin gradually dried out, the resistance vanished, and then rose steadily again until the end of the process at 135°C. After the heat treatment and cooling, the surface layer of the plate was extended and the
Card 1/2

Internal stresses arising in the ...

S/191/63/000/001/017/017
B117/B180

boundary layer compressed. Maximum residual stress in the plate was 1.2 - 1.4 kg/mm², which is approx. 65 % the ultimate tensile stress. This agreed with tensile tests data: the tensile strength of specimens cut out of the plate was about 1.2 - 1.5 kg/mm² lower than that of specimens without asbestos-base bonded glass layers. There are 2 figures.

Card 2/2

S/114/63/000/003/005/005
E191/E435

AUTHORS: Pisarenko, G.S., Corresponding Member of AS UkrSSR,
Doctor of Technical Sciences, Professor,
Kozlov, L.A., Candidate of Technical Sciences,
Lebedev, I.V., Engineer

TITLE: Plastic deformation of a rotating disc

PERIODICAL: Energomashinostroyeniye, no.3, 1963, 26-28

TEXT: Reference is made to earlier experiments conducted and published by the two junior authors (Energomashinostroyeniye, no.2, 1960 and Teploenergetika, no.12, 1960) in which a carbon steel disc with a center bore was spun up. A radially flexible but torsionally stiff element inside the bore permitted almost unrestrained radial expansion of the disc. The yield stress was defined by a residual strain of 0.2%. The strains in the disc of 365 mm outside diameter and a uniform thickness of 20 mm were measured with wire strain gauges at speeds up to 18000 rpm. Strains are plotted against rpm for several points on the disc. Plastic deformation clearly begins where the plot becomes steep. A correlation is sought with the stress-strain diagram obtained in tensile tests. It is seen that the yield point obtained in Card 1/2

Plastic deformation ...

S/114/63/000/003/005/005
E191/E435

this experiment, having regard to the stressing conditions and the accepted hypotheses about complex stresses under small elastoplastic deformations, is only slightly lower than the 0.2% residual strain definition. A comparison with an analytical computation in a graph of the spread of the plastic zone along the disc radius plotted against the rotational speed shows that the inner layers of the disc change into the plastic state much later and the outer layers much earlier than in accordance with analysis. The range of rotational speeds wherein the disc is in an elastoplastic state is in fact much smaller than in theory. An explanation is the redistribution of stresses which causes a departure from the linear stress/strain relationship ahead of the yield point. It follows that a safety factor derived as a ratio of the load at which residual stresses appear in the disc to the actual working load may be substantially misleading. It is pointed out that the approach of G. Weiss and V. Prager (Journal of the Aeronautical Sciences, no. 3, 1954) based on a concept by which the entire radial cross-section of the disc moves bodily when the plastic deformation is reached, yields the best results for approximate stressing calculations. There are 5 figures.

Card 2/2

KOZLOV, I.A., kand.tekhn.nauk

Redistribution of stresses in rotating disks beyond the limit
of proportionality. Vest.mashinostr. 43 no.9:7-10 S '63.
(MIRA 16:10)

ACCESSION NR: AT4040400

S/0000/63/000/000/0226/0233

AUTHOR: Kozlov, I. A.; Matveyev, V. V.

TITLE: Structural dissipation of energy during turbine blade vibrations

SOURCE: Nauchno-tekhnicheskoye soveshchaniye po voprosam kolebaniy s uchetom rasseyaniya energii. 4th, 1962. Rasseyaniye energii pri kolebaniyakh uprigikh sistem (Energy dissipation during vibrations of elastic systems); trudy* soveshchaniya. Kiev, Izd-vo AN UkrSSR, 1963, 226-233.

TOPIC TAGS: turbine, marine turbine, aircraft turbine, variable speed turbine, turbine blade design, blade mounting design, turbine blade vibration, blade mounting damping property, vibration damping tester, energy dissipation, turbine blade

ABSTRACT: The article presents a brief description of an assembly built at the Institut metallokeramiki i spetsial'nykh splavov AN USSR (Metalloceramics and Special Alloys Institute) to study turbine blade vibration damping on actual turbine disks in a centrifugal force field and at high or normal temperatures. The equipment (see Fig. 1 in the Enclosure) is based on an acceleration stand powered by a 46.5 kw d. c. motor and incorporates an MPO-2 Card 1/3

ACCESSION NR: AT4040400

oscillograph. A brief explanation is given of the operating procedure and the concept of a logarithmic damping decrement. The vibrograms of freely damping vibrations of rotating turbine blades which are obtained in this way make it possible to determine the dependence of this damping decrement on centrifugal force and the amplitude of stresses arising in a blade as related to various designs of turbine blade mountings. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 23Nov63

DATE ACQ: 28May64

ENCL: 01

SUB CODE: PR

NO REF SOV: 011

OTHER: 003

Card 2/3

PISARENKO, G.S., prof., doktor tekhn. nauk; KOZLOV, I.A., kand. tekhn. nauk;
LEBEDEV, I.V., inzh.

Reliable deformation of a rotating disc. Energomashinostroyeniye
9 no.3;26-28 Mr'63. (MIRA 17:5)

1. Chlen-korrespondent AN UkrSSR (for Pisarenko).

KOZLOV, I.A., kand. tekhn. nauk; BAZHENOV, V.G., inzh.

Investigating stress concentration in rotating disks beyond
elastic limit. Vest. mashinostr. 43 no.12:15-17 D '63.
(MIRA 17:8)

KOZLOV, I.A., kand.tekhn.nauk; BAZHENOV, V.G., inzh.; LEBEDEV, I.V., inzh.;
MATVEYEV, V.V., inzh.

Effect of stress concentrators on the strength of rotating discs.
Energomashinostroenie 10 no.1:35-37 Ja '64. (MIRA 17:4)

ACCESSION NR: AP4020094

S/0304/64/000/001/0025/0028

AUTHORS: Kozlov, I. A. (Candidate of technical sciences); Bazhenov, V. G.
(Engineer)

TITLE: Stand for testing rotating turbomachine disks

SOURCE: Mashinostroyeniye, no. 1, 1964, 25-28

TOPIC TAGS: test stand, turbine wheel stress, destructive testing, generator PN 400, generator PN 290, generator A61 4, tachometer ICh6, oscillograph EO 7

ABSTRACT: A stand which permits testing of disks under stress, plastic deformation, and destructive stresses at speeds up to 60 000 RPM is described. The testing installation is compartmented to permit easy changing of the different parts. A schematic of the installation is shown in Fig. 1 on the Enclosures. The tested disks are driven by a D.C. motor PN-400 through a two-stage gear reduction (4-ratio 1:4 and 6 ratio 1:15) which permits speeds to 90 000 RPM, although in practice the speeds are restricted by ball bearing limitations. The test section is connected to the drive through the coupling (9) and is contained in a steel test chamber (16) which limits the size of the test disks to less than 1000 mm in

Card: 1/5

ACCESSION NR: AP4020094

diameter. The mounting detail of the disk is shown in Fig. 2 on the Enclosures and includes a cooling system for the supporting bearings with compressed air, water, and oil. The test facility is instrumented to permit dynamic stress and temperature measurements. The construction of the test facility permits experimental work on a large range of disk sizes and under different stress and temperature conditions. Orig. art. has: 2 figures.

ASSOCIATION: Institut metallokeramiki i spetsplavov AN USSR (Institute of Metal Ceramics and Special Alloys, AN UkrSSR)

SUBMITTED: 00

DATE ACQ: 31Mar64

ENCL: 03

SUB CODE: IE

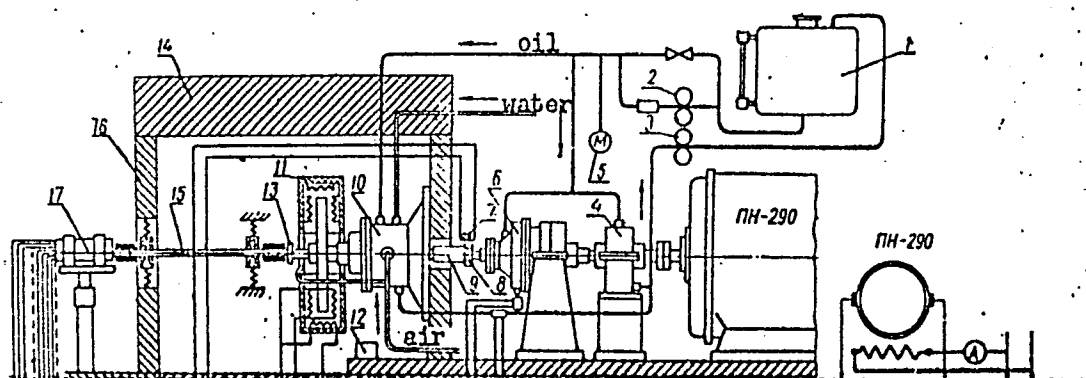
NO REF SOV: 000

OTHER: 000

Card 12/5

ACCESSION NR: AP4020094

ENCLOSURE: 01



To card 4/5

Card 3/5

ACCESSION NR: AP4020094

ENCLOSURE: 02

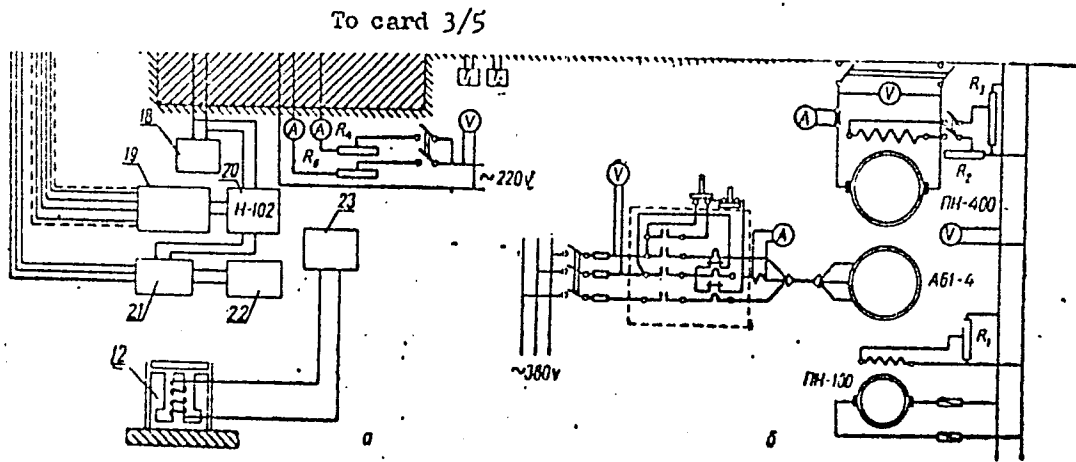


Fig. 1. Schematic of test stand for turbine disks: a- mechanical part with control console; b- principal electrical part.

Card 4/5

ACCESSION NR: APL020094

ENCLOSURE: 03

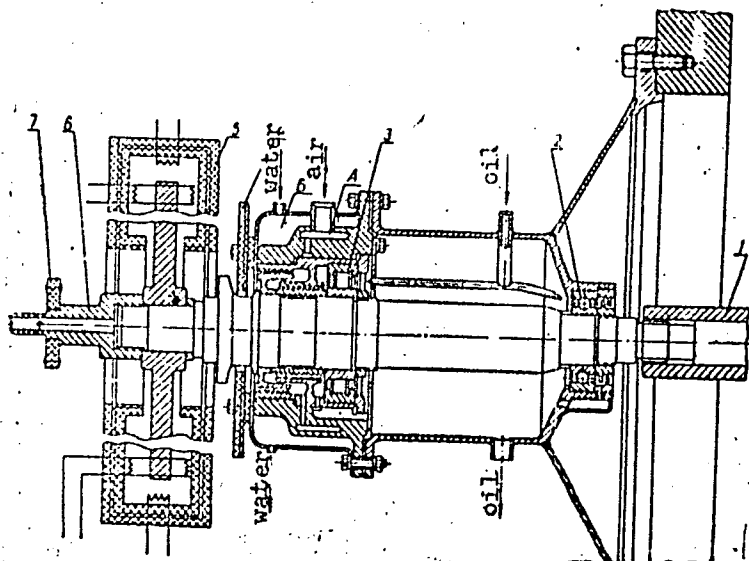


Fig. 2. Disk support.

Card 5/5

KOZLOV, I.A.; GUN, R.B.

Remote control of pumps of petroleum enterprise reservoirs.
Mash. i nef't. obor. no.6:27-31 '64. (MIRA 18:2)

1. Spetsial'noye konstruktorskoye byuro po avtomatike v
neftepererabotke i neftekhimii.

L 5437-66 EWT(M)/EWP(w)/EWP(v)/T-2/EWP(k)/ETC(m) W/W/EM

ACC NR: AP5024782

SOURCE CODE: UR/0021/65/000/009/1157/1160

39
B

AUTHOR: Pysarenko, H. S. — Pisarenko, G. S. (Academician AN UkrSSR);
Bazhenov, V. H. — Bazhenov, Y. G.; Kozlov, I. A.

ORG: Institute of the Problems of the Science of Materials, AN URSR
(Instytut problem materialoznavstva AN URSR)

TITLE: The stress concentration around eccentric openings in operating turbine and pump disks

SOURCE: AN UkrRSR. Dopovidi, no. 9, 1965, 1157-1160

TOPIC TAGS: turbine disk, disk opening, stress concentration, stress calculation, stress

ABSTRACT: Theoretical formulas presently used to calculate the stress concentration around circular openings located in a rotating turbine or a pump disk at a distance from its center are analyzed and compared with formulas derived from experimental data. Theoretical values of the stress-concentration factor were as much as 30—34% lower than the experimental values, regardless of the diameter of the openings or their distance from the disk center or rim. On the basis of the experimental data, corrective coefficients for calculating the radial and tangential stress concentrations were derived which reduced the difference between the theoretical and experimental values of the

Card 1/2

09010632

L 5437-5f

ACC NR: AP5024782

stress concentration to 17-30%. Thus even improved formulas cannot be used to calculate all the factors which affect the stresses near an eccentric opening. Thus it can be concluded that in an operating rotating turbine or pump disk, a maximum stress concentration can appear at any point of an eccentric opening, depending on the location of openings and the effect of various other factors. Orig. art. has: 1 figure and 10 formulas. [MS]

SUB CODE: PR,IE/ SUBM DATE: 26Oct64/ ORIG REF: 001/ OTH REF: 001/

ATD PRESS: 4133

Reh

Card 212

I 13851-66 EWP(j)/EWP(z)/EWT(m)/EWP(b)/T/EWA(d)/EWP(e)/EWP(w)/EWP(t) RM/WH/JD

ACC NR: AP5028983

SOURCE CODE: UR/0122/65/000/009/0009/0012

AUTHORS: Kozlov, I. A. (Candidate of technical sciences); Bazhenov, V. G. (Candidate of technical sciences)

ORG: none

TITLE: Failure of rotating disks ↙

SOURCE: Vestnik mashinostroyeniya, no. 9, 1965, 9-12

TOPIC TAGS: turbine rotor, pump impeller, mechanical failure, material failure, *solid mechanical property*

ABSTRACT: To determine the relative merits of using the maximum normal stress σ_{\max}^y (calculated on the basis of elastic deformations) or the average stresses σ_{av}^t and $\sigma_{\text{r}}^{\text{av}}$ (based on complete redistribution of stresses) in predicting the failure of rotating disks, experiments were performed with flat disks and with complicated rotor shapes such as shown in Fig. 1 (turbine wheels) and Fig. 2 (pump impellers). The experiments were performed on the apparatus described previously by the authors (Stand dlya ispytaniya vrashchayushchikhsya diskov turbomashin. Sb. Mashinostroyeniye, No. 1, ITI, Kiyev, 1964) with flat disks of aluminum (AL4-T6), cast iron, metalloceramic and organic glass and with complicated rotor shapes of chromium-nickel steel. Flat disks

Card 1/3

UDC: 621-226.001.5:539.4

I 13851-66

ACC NR: AP5028983

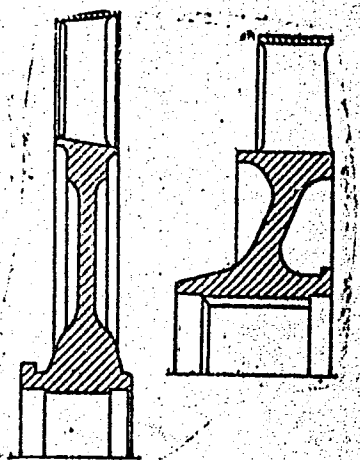


Fig. 1. Turbine rotor shapes.

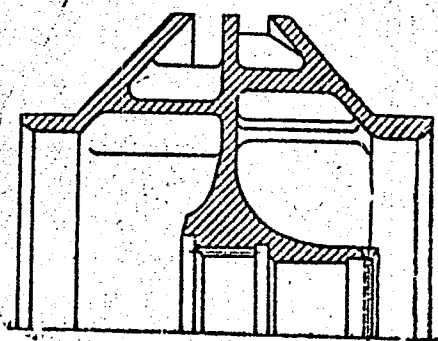
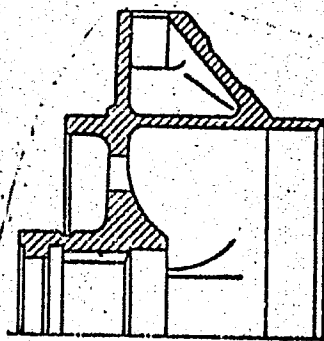


Fig. 2. Pump impeller shapes.

Card 2/3

L 13851-66

ACC NR: AP5028983

with central and eccentric holes were used. For the latter, the theoretical stress σ_k^y at the stress concentrator ($k_T = 3 - \sigma_r/\sigma_t$) and the effective stress σ_k^{ef}

$$q = \frac{k_{ef} - 1}{k_T - 1}$$

were calculated. The plasticity of the material was specified by the residual elongation δ . The ratios of the above-mentioned stresses (where applicable) to the yield stress σ_b were tabulated at failure. It was found that: the relative strength σ_{max}^y/σ_b of the turbine rotors ($\delta = 3.0\%$) was the same (≈ 1.43) as that of flat cast iron disks ($\delta = 0.25$), indicating the importance of geometry on strength; the high ductility ($\delta = 12$) of the impellers permitted a much higher value (≈ 1.85) when the stress at the stress concentrations was used as σ_{max}^y ; the stress σ_{max}^{ef} , calculated with consideration of the plastic properties of the material, agreed well with the yield stress ($\sigma_{max}^{ef}/\sigma_b = 1.0, 0.95, \text{ and } 1.11$ for aluminum, cast iron, and steel respectively) but this calculation is impractical with complicated shapes; σ_{max}^y is exact only for very brittle materials ($\delta = 0$), while σ_t^{av} or σ_r^{av} are good only for ductile materials ($\delta > 3-4\%$); stress concentrations must be considered regardless of ductility. Orig. art. has: 4 formulas, 1 table, and 6 figures.

SUB CODE: 13,20/SUBM DATE: none/ SOV REF: 006/ OTH REF: 001
Card 3/3

KOZLOV, I.A., kand. tekhn. nauk; BAZHENOV, V.G., kand. tekhn. nauk

Breakdown of rotating disks. Vest. mashinostr. 45 no. 9:9-12 S 165.
(MIRA 18:10)

KOZLOV, Igor' Andreyevich; BAZHENOV, Vladimir Grigor'yevich;
SYTNIK, H.K., red.

[Limiting carrying capacity of the parts of turbo-
machines] Predel'naia nesushchaia sposobnost' elementov
turbomashin. Kiev, Naukova dumka, 1965. 166 p.
(MIRA 18:5)

KOZLOV, I.A

AUZLOV, I.A., kand. tekhn. nauk; BAZHENOV, V.G., kand. tekhn. nauk

Evaluation of the strength of turbine discs. Energomashinostroenie
11 no.9:28-30 S '65.
(MIRA 18:10)

L 24451-66 EWI(m)/ENP(w)/ENP(f)/EDE(n)-2/ENP(v)/T-2/ENP(k)/ETC(m)-6 IJP(c)
ACC NR: AT6008674 (N) SOURCE CODE: UR/0000/65/000/000/0294/0304

AUTHORS: Kozlov, I. A. (Kiev); Bazhenov, V. G. (Kiev); Leshchenko, V. M. (Kiev) 83
BH

ORG: none

TITLE: Investigation of the stressed condition and strength of gas turbine disks

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh temperaturakh, 3d, Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya. Kiev, Naukova dumka, 1965, 294-304

TOPIC TAGS: turbine blade, turbine wheel, gas turbine, stress analysis, fatigue strength

ABSTRACT: The stress conditions and strength of chromium-nickel gas turbine disks of complicated profile were experimentally investigated and compared with theoretical results obtained by dividing the disk into circular sections (G. S. Pisarenko, i dr., Nekotoryye voprosy prochnosti lopatek i diskov gazovykh turbin, Izd-vo AN UkrSSR, 1962). The disks were cast integral with the turbine blades. Stress profiles were obtained at 18 000 and 24 000 rpm, and maximum discrepancies of 18% with calculated values were observed (curves of the calculated and experimental stress profiles are presented) for symmetrical disks, and of 150--160% for conically shaped disks. Stress profiles were also obtained for the two types of disks just prior to failure (at

Card 1/2

L 24451-66

ACC NR: AT6008674

44 500 and 54 000 rpm respectively, for 196- and 148-mm outside diameter). It was found that the maximum stresses at failure were different by 50% from calculated values. It is concluded that present theoretical methods are inadequate for predicting the strength of complicated turbine disks. Orig. art. has: 10 formulas and 7 figures.

SUB CODE: 13, 20/ SUBM DATE: 19Aug65/ ORIG REF: 011

Card 2/2 dda

L 24463-66 EWT(m)/EWP(w)/EWP(f)/EPF(n)-2/EWP(v)/I/EWP(j)/EWP(k)/ETC(m)-6 IJP(c)

ACC NR: AT6008676 WW/EM/GS/JX^(H)(CZ)/RM SOURCE CODE: UR/0000/65/000/000/0311/0316AUTHORS: Balyuk, A. D. (Kiev); Baahenov, V. G. (Kiev); Kozlov, I. A. (Kiev); Matveyev, V. V. (Kiev)

ORG: none

TITLE: On the investigation of vibration damping of turbine blades on rotating disks at high temperatures

SOURCE: Vsesoyuznoye soveshchaniye po voprosam staticheskoy i dinamicheskoy prochnosti materialov i konstruktsionnykh elementov pri vysokikh i nizkikh temperaturakh, 3d, Termoprochnost' materialov i konstruktsionnykh elementov (Thermal strength of materials and construction elements); materialy soveshchaniya, Kiev, Naukova dumka, 1965, 311-316

TOPIC TAGS: turbine blade, turbine rotor, vibration damping, vibration stress, high temperature effect

ABSTRACT: The experimental apparatus used for studying the damping of turbine blades on rotating disks at high temperatures is described. The disks are mounted on an acceleration stand, as suggested by G. S. Pisarenko, and I. A. Kozlov (O nesushchey sposobnosti bystrovrashchayushchikhsya diskov, Ukrghostekhnizdat, 1962), which has a special electronic speed indicator-regulator and which can be heated to 870--970K before starting the test. The damping curves are obtained on an N-102 oscillograph

Card 1/2

L 24463-66

ACC NR: AT6008676

which receives signals from special high temperature resistance strain gages (heat-treated constantan wire) bonded with B-58 cement. The blades are excited by a bullet from a small caliber gun which can be fired ten times during a run. Circuit diagrams of the speed indicator, gun triggering, and oscillograph triggering circuits are given, and a sample trace of free, damped vibrations of a blade travelling at 300 rad/sec at 570K is presented. Orig. art. has: 5 figures. 2

SUB CODE: 21, 20/ SUBM DATE: 19Aug65/ ORIG REF: 005/ OTH REF: 001

Card 2/20/65

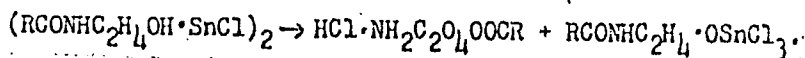
L 11109-67 EWT(m)/EWP(j) RM
 Acc. No. A77003666

SOURCE CODE: UR/0079/66/036/008/1484/1487

KOZLOV, I.A., OSIPOV, O.A., Volgodonskaya Affiliato, All-Union
 Scientific Research Institute of Synthetic Oil Substitutes (Volgodonskoy filial
 Vsesoyuznogo nauchno-issledovatel'skogo instituta sinteticheskikh zhirczameniteley)
 "Reaction of Tin and Titanium Tetrachlorides with Ethanolamides of Aliphatic
 Acids. III" 22

Moscow, Zhurnal Obshchey Khimii, Vol 35, No 8, 1966, pp 1184-1187

Abstract: It was found that in the reaction of tin and titanium tetrachlorides with monoethanolamides (MEA)RCONHC₂H₄OH and diethanolamides (DEA)RCON(C₂H₄OH)₂ of aliphatic acids, where R is a hydrocarbon radical containing from seven to 11 carbon atoms, complex compounds with the composition 2MEA·2MeCl₄ and 2DEA·3MeCl₄ are formed. It was further found that in dioxane solution these complex compounds undergo further molecular transformations: a molecular rearrangement of complex compounds of tin and titanium tetrachlorides with ethanolamides of aliphatic acids was detected and studied. A mechanism was proposed for the rearrangement: when solutions of the complexes in dioxane are heated, there is a replacement of the hydrogen of the hydroxyl group of the ethanolamides by the SnCl₃ or TiCl₃ group, liberating a HCl molecule. The latter causes a rearrangement of the ligand molecule, according to the scheme:



Card 1/2

UDC: 547.258.11 + 547.372

0926 0287

L 11109-67
ACC NR: AP7003666

Rearrangement products of complex compounds of the diethanolamide of caprylic acid with SnCl_4 and TiCl_4 : the solid complex compounds isolated were found to contain dioxane.

Orig. art. has: 5 figures. [JPRS: 38,970]

SUB CODE: 07 / SUBM DATE: 14Jun65 / ORIG REF: 004 / OTH REF: 003

Card 2/2 jb

ACC NR: AM5028882 (N) Monograph

UR/

Kozlov, Igor' Andreyevich; Bazhenov, Vladimir Grigor'yevich

Limiting carrying capacity of the parts of turbomachines (Predel'naya nesushchaya sposobnost' elementov turbomashin) Kiev, Naukova dumka, 1965. 166 p. illus., biblio. (At head of title: Akademiya nauk Ukrainskoy SSR. Institut problem materialovedeniya) 1300 copies printed.

TOPIC TAGS: turbine, turbine design, turbine disc

PURPOSE AND COVERAGE: This book is intended for engineers and scientists concerned with the strength of machine parts, as well as for professors and students at technical schools of higher education. Methods, based on experimental data, for determining maximum safe load of turbine parts are presented. On the basis of their own experimental data, the authors attempt to analyze methods for determining load-carrying capacities and to evaluate the errors resulting from the use of conventional premises and hypotheses for calculating strength. Recommendations, based on the authors' experiments, are offered to enable a more correct determination of the maximum safe load of structural members. Some of the equipment used for conducting the experiments are described. The experiments were carried out at the High-Temperature

Cerd 1/2

ACC NR: AM5028882

Strength Department of the Institute for Problems in Science of Materials,
Academy of Sciences USSR.

TABLE OF CONTENTS [abridged]:

- Ch. I. Theoretical methods for determining load-carrying capacity -- 5
 - Ch. II. Experimental methods of investigating load-carrying capacities -- 32
 - Ch. III. Load-carrying capacity of rotating disks -- 60
 - Ch. IV. Effect of stress concentrations on the load-carrying capacity of structural members -- 115
 - Ch. V. Load-carrying capacity of pump impellers -- 146
- ||
- Bibliography -- 164

SUB CODE: 13 09, 19 / SUBM DATE: 08Jan65 / ORIG REF: 043 / OTH REF: 017

Card 2/2

ACC NR: AT7003567

(N)

SOURCE CODE: UR/3240/66/000/001/0103/0107

AUTHORS: Bazhenov, V. G.; Kozlov, I. A.; Leshohenko, V. M.

ORG: Institute for Problems in the Study of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Investigation of stressed condition in rotating disks with stress concentrators

SOURCE: Kharkov. Politekhnicheskii institut. Energeticheskoye mashinostroyeniye no. 1, 1966. Teploobmen i gazodinamika (Heat transfer and gas dynamics), 103-107

TOPIC TAGS: stress concentration, stress distribution, turbine disk

ABSTRACT: The stress distribution in a rotating disk with eccentric holes is investigated experimentally. The coefficient of stress concentration is defined by

$$K_{\sigma} = 3 - \frac{d}{b} - \frac{\sigma_r}{\sigma_t}$$

where b is the closest distance between holes. The investigation is carried out with a turbine disk as shown in Fig. 1. The stresses were estimated by means of strain gauges and plotted graphically as a function of x/d . The calculated stresses at the three points 1, 2, 3 were found to be 9.25 and 15% lower than measured values. The experimental data show that the highest stress concentration occurs at point 2 for which $K_{\sigma} = 2.65$

Card 1/2

ACC NR: AT7003567

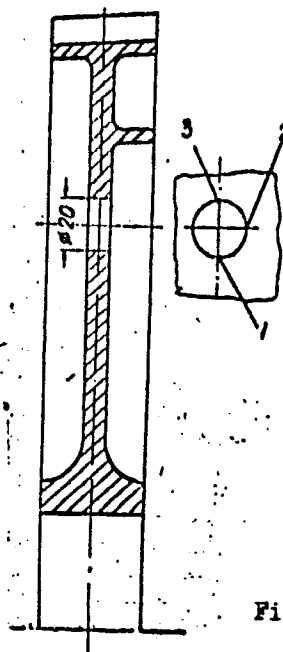


Fig. 1.

Orig. art. has: 4 figures and 3 formulas.

SUB CODE: 20/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 001
Card 2/2

KOZLOV, I. D.

Dissertation: "Crossbreeding Coarse-Wooled Tsakel' and Chushka Sheep With the Askaniya Fine-Fleece Breed." Cand Agr Sci, Azerbaydzhan Agricultural Inst, 19 May 54. Bakinskiy Rabochiy, Baku, 9 May 54.

SO: SUM 284, 26 Nov 1954

Kozlov I. D.

USSR / Farm Animals. Small Horned Stock.

Q-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105667.

Author : Kozlov, I. D.

Inst : Ukrainian Scientific Research Institute of
Animal Husbandry "Askaniya-Nova".

Title : Interbreed Crossing for the Regeneration of the
Askaniya Fine-Wool Breed and Development of New
Breeds of Sheep in the South of the Ukrainian SSR.

Orig Pub: Tr. Ukr. n.-i. in-ta zhivotnovodstva "Askaniya-
Nova", 1957, 6, 27-41.

Abstract: In the breeding work for the regeneration of
the Askaniya breed of sheep, the interbreed
crossing of Askaniya rams with Coarse-wool ewes
(Tsakel, Chushka), with Fine-wool ones (Tsigay
and their hybrids) and with ewes from Fine-wool
Stavropol, Caucasian and Soviet Merino breeds

Card 1/3

USSR / Farm Animals. Small Horned Stock.

Q-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105667.

Abstract: was resorted to. A considerable percentage of hybrids descended from Coarse-wool ewes, had uniform fine and semi-fine wool (30-71%), and a higher yield and live weight than Coarse-wool mother ewes. For this crossing it is better to use Askaniya rams of the normal slightly-plicated and with increased plication types, possessing a good wool closeness and overgrowth. The hybrids obtained from Semi-fine-wool sheep are close to merinos as to the quality of their wool but their wool possess less evenness and yolk and also loses its elasticity and strength characteristic of Tsigay sheep. For this crossing, it is necessary to select rams of the normal type with sufficient yolk qualities, a good overgrowth and long wool. The crossing of the Askaniya rams

Cont. 2/3

USSR / Farm Animals. Small Horned Stock.

Q-2

Abs Jour: Ref Zhur-Biol., No 23, 1958, 105637.

Abstract: with ewes of the fine-wool breeds produces already in the first generation animals similar to the sheep of the Askaniya breed. The Askaniya ewes were also crossed with rams of the Lincoln and Romney Marsh breeds. The offspring obtained was distinguished by earliness, great height, and semi-fine wool. -- G. V. Bogolyubova.

Card 3/3

BIGLER, M.S.; SHARYGINA, L.I.; KASPAROVA, A.B.; YAKOVLEV, V.A.;
GRINEVICH, N.N.; YUDINA, A.P.; SEMICHENKO, H.P.;
STOLYAROV, A.I.; FURSOVA, T.A.; KOZLOV, I.D., red.;
SERPOKRYL, S.M., red.

[Leningrad and Leningrad Province in figures; a statistical abstract] Leningrad i Leningradskaya oblast' v tsifrakh; statisticheskii sbornik. Leningrad, Lenizdat, 1964. 250 p. (MIRA 16:2)

1. Leningrad. Statisticheskoye upravleniye. 2. Statisticheskoye upravleniye Leningrada (for Kozlov, Sharygina, Kasparova, Yakovlev, Grinevich, Yudina). 3. Statisticheskoye upravleniye Leningradskoy oblasti (for Semichenko, Stolyarov, Fursova).

KOZLOV, I. F., **IX** (NIITaplepribor, Moscow)

"Construction of Pressurized Air Apparatus of Small Dimensions for Automation,"

report presented at the Scientific Seminar on Pneumo-Hydraulic Automation, 28-29 May 1957, at the Inst. for Automation and Remote Control (IAT) Acad. Sci. USSR.

Avtomika i Telemekhanika, 1957, vol. 18, No. 12, pp 1148-1150, (author SEMIKOV, A. I.)

Kozlov, I. F.

28(1) P.2

PHASE I BOOK EXPLOITATION

SOV/2702

Akademiya nauk SSSR. Institut avtomatiki i telemekhaniki.
Seminar po pnevmogidravlicheskoy avtomatike. 1st, Moscow, 1957

Sistemy, ustroystva i elementy pnevmo- i gidroavtomatiki; [sbornik]
(Pneumatic and Hydraulic Circuits Devices, and Elements in
Automation; [Collection of Papers]) Moscow, Izd-vo AN SSSR,
1959. 233 p. Errata slip inserted. 2,700 copies printed.

Resp. Ed.: M. A. Ayzerman, Doctor of Technical Sciences, Professor;
Ed. of Publishing House: A. A. Tal'; Tech. Ed.: T. P. Polyakova.

PURPOSE: This collection of papers is intended for scientific
research workers and engineers in the field of design and con-
struction of pneumatic and hydraulic equipment and accessories
for automation.

COVERAGE: This collection contains papers read at the Seminar on
Pneumatic and Hydraulic Devices for Automation, May 28, 1957.
The collection is divided into the following three groups: 1)
newly developed pneumatic and hydraulic circuits 2) pneumatic
and hydraulic devices, including regulating units, transmitters
Card 1/

Pneumatic and Hydraulic (Cont.)

SOV/2702

and transducers, actuating mechanisms, special-purpose devices, and auxiliary equipment and 3) elements of pneumatic and hydraulic devices for automation, such as controlled and permanent nozzles and diaphragms. No personalities are mentioned. References follow several of the papers.

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NEWLY DEVELOPED PNEUMATIC AND HYDRAULIC CIRCUITS

Shneyerov, M. S. [Moscow]. KBTsMA Pneumatic Unitized Circuit 3
This paper discusses methods of unitizing automatic lines by using standardized units and circuits. The principal component instruments were built by KBTsMA.

Kozlov, I. F. [Moscow]. New Small-size Pneumatic Instruments for Automatic Control and Regulation, Developed by "NII Teplopribor" 12
Regulating units, secondary recording and indicating instruments, computers, and controllers are among the instruments dealt with in this paper.

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This paper discusses hydraulic feed, transport, clamping, and other mechanisms of machine tools.

Stupak, B. F. [Leningrad]. Elements of Hydraulic Instruments 31
This paper deals with the functioning and construction of such hydraulic instruments as regulating units, slide valves, oil filters, oil pumps, overflow valves, hydraulic actuators, and throttles.

PNEUMATIC AND HYDRAULIC DEVICES FOR AUTOMATION
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component Regulating Unit 50

Dvoretzkiy, V.M. [Moscow]. Small-size Hydraulic Regulating Unit,
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Zasedatelev, S.M., and V.A. Rukhadze [Moscow]. Problems in Constructing Primary Instruments -- Differential Pressure Transmitter With Pneumatic Force Compensation 61

This paper is a theoretical discussion of differential transmitters dealing with their sensitivity, errors, and reliability.

Krementulo, Yu. V. [Moscow]. Electropneumatic Transducers, IAT AN SSSR 77

Dmitriyev, V.N. [Moscow]. Static Characteristics of a Pneumatic Relay With Constant Pressure Drop in Nozzles 86

This paper discusses the static characteristics of a back-pressure type pneumatic relay with indicators that are not sensitive to minute gap changes.

Zasedatelev, S.M., and V.A. Rukhadze [Moscow]. Differential Pressure Transmitters With Pneumatic Force Compensation (Review of Non-Soviet Designs) 91

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Actuating Mechanisms

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Arkhangel'skiy, A.F. Hydraulic Universal Variable-speed Transmission (URS) 103
This paper describes an axial-piston variable-speed transmission. Its technical specifications and fields of application are discussed.

Babushkin, S. A. Leningrad. Equations for a Stabilizing System With a Hydraulic Actuator Connected With a Control Device by Hydraulic Main Lines 112
Equations of the motion of the actuator piston and elements of the control device are given. Design examples are presented.

Special-purpose Devices

Berezovets, G. T. Moscow. Pneumatic Ratio Controllers Card 5/

Pneumatic and Hydraulic (Cont.)

SOV/2702

Without Mechanical Dividers

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Types RS-1 and RS-2 ratio controllers are described. The change of ratio in relation to the throttle opening and the primary pressure is discussed.

Zalmanzon, L.A., and A.I. Semikova [Moscow]. Designing a Non-linear Transformation in Pneumatic Systems by Means of "Nozzle-Tube" Type Elements

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This paper discusses the first stage of an investigation made at the Laboratory for Pneumatic and Hydraulic Automation, IAT AN SSSR. The characteristics of a pneumatic nozzle-tube-type relay consisting of a nozzle and pitot tube are described. The functioning and possible uses of this device are dealt with. Schematic diagrams of the relay and photographs of the experimental installation are shown.

Berends, T. K., and A. A. Tal' [Moscow]. Possibility of Constructing a Pneumatic Regulator With Automatic Response to Load Changes

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SOV/2702

Ostrovskiy, Yu. I. [Moscow]. Extremal Pneumatic Regulator, 155
IAT AN SSSR

The basic principles of an extremal regulator for maintaining certain maximum or minimum values in an automated system are discussed. A schematic diagram is presented, and the construction is described. Results of laboratory testing are given.

Auxiliary Equipment

Prusenko, V. S. [Moscow]. Automatic Installation for Compressed Air Supply 165

A description is given of an installation with units of simple construction (rotary liquid piston compressor and two-stage dehydrator) for securing a continuous supply of clean and dry compressed air.

ELEMENTS OF PNEUMATIC AND HYDRAULIC AUTOMATION

Controlled and Permanent Nozzles

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SOV/2702

Andreyeva, Ye. A. [Moscow]. Calculating the Static Characteristics of Back-pressure Type Elements 172

This paper deals with a theoretical analysis of back-pressure type elements. Flow of fluid, pressure distribution on plates, and general characteristics are discussed.

Shumskiy, N.P. [Moscow]. Results of Experimental and Theoretical Investigations of Back-pressure Type Control Devices 181

Bogacheva, A.V. [Moscow]. High-velocity Laminar Air Flow in Flat Capillary Channels 194

This paper discusses air flow in flat capillary channels at varying pressures. The flow rate is experimentally investigated and results shown graphically. Charts to be used for determining resistance coefficients and flow rates are presented.

Kichin, I, N. [Moscow]. Nozzle Clogging and Methods of Combating It 205

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The tendency of certain working fluids toward nozzle and slit clogging is examined. Minimum dimensions of nozzle and slit sections at which the fluid flow rate remain stable are determined. Some practical methods of combating clogging are presented.

Diaphragms

Afanas'yev, V.V. Moscow. On Variation of Effective Areas of Fabric Diaphragms 216

Changes in the magnitude of effective areas of corrugated diaphragms during the stroke are analyzed and their significance in the design of a KBTsMA pneumatic regulator discussed.

Mach, Yu, L., and G. P. Stepanov Moscow. Investigation of Characteristics of Diaphragms Used in Sensitive Elements of Regulators 224

Characteristics of rubberized-fabric diaphragms made from various materials are discussed. The amount of hysteresis in relation to the stroke and the influence of the temperature of the surrounding medium are investigated. Test results of Card 9/

Pneumatic and Hydraulic (Cont.)

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beryllium-bronze diaphragms are presented.

AVAILABLE: Library of Congress

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SOV/28-59-4-2/19

28(3), 25(2)

AUTHOR: Kozlov, I.F., Engineer

TITLE: The Unification of the Input and Output Parameters of Pneumatic Control Instruments (Unifikatsiya vkhodnykh i vykhodnykh parametrov priborov pnevmaticheskoy sistemy)

PERIODICAL: Standartizatsiya, 1959, Nr 4, pp 9-10 (USSR)

ABSTRACT: The general design principles and advantages of pneumatic control devices extensively used in various industrial processes are briefly discussed. It is mentioned that in the USA, they constitute 80-90 % of all automation means, that even electronic regulators recently made in the USA (and also in the USSR) are provided with pneumatic adjusting valves, and that the Soviet instrument industry has developed a pneumatic "AUS" ("agregatnaya unifitsirovannaya sistema", or "unified transfer system"). This system includes primary pickup devices, secondary recording and indicating devices, computing units performing simple

Card 1/2

SOV/28-59-4-2/19

The Unification of the Input and Output Parameters of Pneumatic Control Instruments

counting operations, adjusting and auxiliary units, all "unified" (i.e. made alike) to the utmost in respect to the input and output parameters. The "AUS" devices are in lot production at the instrument plants. The "unified" input and output parameters will permit intercombinations of the pneumatic units for different applications. The chosen air super-pressure range for the system is 0.2-1 kg/cm²; the zero point is raised to 0.2 kg/cm², to eliminate the instability and time delay in the operation of the sensitive elements near the zero point. There is 1 graph.

ASSOCIATION: NIITEPLOPRIBOR

Card 2/2

06498

SOV/141-58-4-14/26

AUTHOR: Kozlov, I.G.

TITLE: On the Problem of the Amplification Mechanism in a Single-Beam Electron-Wave Tube (K voprosu o mekhanizme usileniya v odnoluchevoy elektronno-volnovoy lampe)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiofizika, 1958, Nr 4, pp 116-119 (USSR)

ABSTRACT: An experimental investigation of the velocity distribution of the electrons in a ribbon-type electron beam was carried out (Ref 1). The investigation was done by using the cylindrical condenser method in a sealed-off device at a pressure of less than 10^{-6} mm Hg; the resolving power of the analyser was 35; the method of measurement was described by Hughes and Rojansky (Ref 2). The results obtained are shown graphically in Fig 1, where the axis of abscissae shows the energy of the electrons, while the axis of the ordinates indicates the number of electrons in an interval of the resolved velocities. It is seen that the electron velocity distribution has two maxima. From this it is concluded that such a type of a single-beam electron tube can be

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SOV/141-58-4-14/26

On the Problem of the Amplification Mechanism in a Single-Beam
Electron-Wave Tube

employed as a Haeff wave tube (Ref 5). The problem can be investigated by using the Vlasov scattering equation which is as follows (Ref 7):

$$\frac{R}{[W - (v_1/v_2)z]^2} + \frac{1}{(W - z)^2} = 1 \quad (1)$$

where $R = (\omega_1/\omega_2)^2$, $W = \omega/\omega_2$ and $z = \beta v_2/\omega_2$; ω_1 and ω_2 are plasma oscillation frequencies for the points corresponding to the maxima of the distribution functions; v_1 and v_2 are the corresponding electron velocities; ω and v are the frequency and the phase velocity of the wave respectively; $\beta = \omega/v$. The plasma frequencies corresponding to the principal maxima can be determined for a given anode voltage. It is also possible to evaluate the parameters v_1/v_2 and R . In particular if $R = 0.1$ and $v_1/v_2 = 0.9$, the solution of Eq (1) is in the form of the curve given in Fig 2. Since the gain of

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On the Problem of the Amplification Mechanism in a Single-Beam
Electron-Wave Tube

the tube is defined by Eq (3), the curve of Fig 2 can be used to plot the gain as a function of frequency. This is done in Fig 3 for various values of the anode voltage. Fig 4 shows that the investigated tube can be regarded as a wide-band resonant amplifier; for example, at a frequency of 7×10^8 c/s it is possible to obtain an amplification of 35 db and a frequency bandwave of about 600 Mc/s. The author expresses his gratitude to P.V.Golubkov for suggesting the subject and directing the work. The paper contains 3 figures and 8 references, 2 of which are Soviet and 6 English.

ASSOCIATION: Saratovskiy gosudarstvennyy universitet
(Saratov State University)

SUBMITTED: 11th December 1957

Card 3/3

29.6716

S/058/62/000/004/138/160
A061/A101

AUTHORS: Golubkov, P. V., Bakhrakh, L. E., Kozel', I. Sh., Kozlov, I. G.,
Medoks, V. G.

TITLE: A study of some electron beam properties

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 16, abstract 4Zh106
"Uch. zap. Saratovsk. un-t", 1960, v. 69, 41 - 56)

TEXT: This is a report of results obtained from theoretical and experimental investigations of the structure of long electron beams of different configurations, moving in focusing fields. The pulsation factor of the internal and external boundaries of the hollow-cylindrical electron beam focused in constant and intermittent magnetic fields is calculated and represented graphically. It is shown how the pulsation factor can be restricted to given limits in a wide range of the beam voltage variation. Formulas and the respective diagrams concerning the pulsation of the internal and external boundaries of the hollow-cylindrical electron beam in centrifugal and electrostatic focusing are obtained. It is shown that pulsation is determined by the radial ratio of the internal and

Card 1/2

A study of some electron beam properties

S/058/62/000/004/138/160
A061/A101

external boundaries of the beam. The effect of the space charge is considered. The density distribution over the cross section of the electron beam and the pulsation factor of its boundaries are experimentally investigated using a special mobile system of collectors. The curves of density distribution are plotted from (experimental) points, and are also observed by oscilloscope. The strip beam and the hollow-cylindrical beam in the longitudinal magnetic field are investigated. The distribution of electron velocities in electron beams is investigated experimentally. A cylindrical capacitor is used as velocity analyzer. The study was conducted in different beam cross sections, in a significant range of accelerating voltages and at different pressures of the residual gas. The existence of two maxima in the curve of velocity distribution is shown. The possible causes of this phenomenon are considered.

G. Sh.

[Abstracter's note: Complete translation]

Card 2/2

KOZLOV, I. G.

Cand Phys-Math Sci - (diss) "Several results of an experimental study of the distribution of electron speeds in electron beams." Moscow, 1961. 11 pp; (Moscow Order of Lenin and Order of Labor Red Banner State Univ imeni M. V. Lomonosov, Physics Faculty); 150 copies; free; bibliography on p 11 (26 entries); (KL, 6-61 sup, 193)

S/141/62/005/001/024/024
E039/E485

9,4230

AUTHOR: Kozlov, I.G.

TITLE: On the influence of propagation velocity of electrons
in electron beams on the problem of amplifying
TW tubes

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy.
Radiofizika, v.5, no.1, 1962, 192-194

TEXT: It has been found that in the experimental study of
electron beams from a "Pirs" type electron gun there is always a
singular electron velocity distribution. Typical distribution
curves are given and all show one main peak and a subsidiary peak
on the lower voltage side. This effect is explained on the basis
of secondary electrons emitted from the gun anode being
accelerated and ionizing residual gas. In this paper the
influence of the dispersion velocity on the particular problem of
amplification of TW tubes is examined. It is assumed that a
weakly divergent beam of electrons is obtained from an electron
gun and the velocity distribution determined. The beam is
focussed without noticeable loss of electrons and without
Card 1/2

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On the influence of propagation ...

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E039/E485

destroying the velocity distribution. This system is treated as if composed of two mixed electron beams and is discussed in detail on this basis. Comparisons are made with previous works on double electron beams. The formation of pulses in the two mixed electron beams is examined and further investigation of the question is considered necessary. The problem was proposed by P.V.Golubkov who also directed the work. There is 1 figure.

✓
B

ASSOCIATION: Saratovskiy gosudarstvennyy universitet
(Saratov State University)

SUBMITTED: May 15, 1961

Card 2/2

KOZLOV, I.G.; SHAPOVALOV, A.S.

Focusing and dispersion properties of the field of a cylindrical capacitor. Izv. vys. ucheb. zav.; radiofiz. 7 no.3:531-538 '64.
(MIRA 17:11)

L. Saratovskiy gosudarstvennyy universitet.

SHAPOVALOV, A.S.; KOZLOV, I.G.

Some results of an experimental study of the properties of an electrostatic analyzer of charged particle energy. Izv. vys. ucheb. zav.; radiofiz. 8 no.4:775-783 '65. (MIRA 18:9)

1. Saratovskiy gosudarstvennyy universitet.

L 26054-66 EWT(1)/EWT(m)/T

ACC NR: AP5022802

SOURCE CODE: UR/0141/65/008/004/0775/0783

80
76
B

AUTHOR: Shapovalov, A. S.; Kozlov, I. G.

ORG: Saratov State University (Saratovskiy gosu darstvennyy universitet)

TITLE: Some results of an experimental study of properties of an electrostatic analyzer of charged particle energy

2

SOURCE: IVUZ. Radiofizika, v. 8, no. 4, 1965, 775-783

14

TOPIC TAGS: electrostatics, charged particle, electrostatic field, spectrometer, electric capacitor, electron beam, electromagnetic wave dispersion
ABSTRACT: The focusing and dispersion properties of an electrostatic field of a cylindrical capacitor were studied and the possibility was examined for using it as an element of the charged particle energy spectrometer. The investigation indicated that during an injection of charged particle current at an acute angle to the axis of the cylindrical capacitor the field of the latter has a greater specific dispersion for energy than the plane capacitor field. Results were presented for the experimental study of the main characteristics of the analyzer of charged particle energy which was used as the analyzing element of the cylindrical capacitor field with an injection of particles at an acute angle to

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Card 1/2

UDC: 539.07:523.165

L 26054-66

ACC NR: AP5022802

4
the axis of the cylinders. The results of the experiment were compared with those of the theoretical investigation. I. G. Kozloy, A. S. Shapovalov (Izv. vyssh. uch. zav., Radiofizika, 7, 531, 1964). The resolution of one spectrometer was compared with that of another with the field of the plane capacitor as the dispersive element. The plane capacitor had slots of approximately the same sizes as the cylindrical capacitor which was investigated (0.25 mm x 6.3 mm). The aperture angle of the electronic beam during its injection into both the plane capacitor and the cylindrical one is the same. Both analyzers were studied with the aid of electron beams with filamentary tungsten emitters. The main difference in geometric sizes of spectrometers consisted of the distance between the slots. The authors are deeply grateful to P. V. Golubkov for his interest in the work and his valuable discussions on results obtained, to Ye. I. Markin for his careful preparation of the experiments, to L. L. Strakhova and G. F. Shapovalova for their help in obtaining measurements. Orig. art. has: 7 fig. and 6 equations.

SUB CODE: 20 / SUBM DATE: 22Sept64/ ORIG REF: 008/ OTH REF: 002

Card 2/2 *pla*

L 44115-66

ACC NR: AP6026944

SOURCE CODE: UR/0141/66/009/004/0836/0840

AUTHOR: Shapovalov, A. S.; Kozlov, I. G.

ORG: Saratov State University (Saratovskiy gosudarstvennyy universitet)

20
B

TITLE: Focusing properties of the cylindrical-capacitor field

SOURCE: IVUZ. Radiofizika, v. 9, no. 4, 1966, 836-840

TOPIC TAGS: electric capacitor, spectrometer

ABSTRACT: This is an extension of a previous authors' work (IVUZ. Radiofizika, 1964, no. 7, 531) where the focusing and dispersing properties of the electrostatic field of a cylindrical capacitor were considered in the case when a slightly diverging stream of charged particles was introduced at an acute angle to the cylinder axis. The present article offers a formula for the size of the image of a point electron source. Theoretically, this size could be determined from the following formula:

$$x_0/r_0 = 4\epsilon \exp(t^2 \sin^2 \theta) \cos \theta \int_0^{t \sin \theta} e^{-z^2} dz; \text{ however, this way is too difficult for practical}$$

purposes. Hence, the above formula is simplified and expanded into α -power series.

The source image size is $\Delta x_0 = x_0 (C_0 \alpha^2 \pm C_0 \alpha^4)$. The focusing conditions in a

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UDC: 621.319.41-2