LUR'YE, G.O.

Some problems of the use of rheography in a surgical clinic.
Trudy 1-go MMI 33:409-413 '64. (MIRA 18:3)

LUR'E, G. E.

"Electric conductivity of aqueous solutions of sodium thicantimonite ($Na_3SbS_3.9H_2O$)." G. E. Lur'e, S. I. Sklyarenko, and G. E. Kaplan. (p. 1554)

SO: Journal of General Chemistry (Zhurnal Obshchei Khimii) 1950, Vol 20, No 9.

KARAPET'YANTS, M.Kh.; LUR'YE, G.Ye., redaktor; LUR'YE, M.S., tekhnicheskiy redaktor.

[Examples and problems in chemical thermodynamics] Primery i zadachi po khimicheskoi termodinamike. Izd. 2-e. Moskva, Gos.nauchno-tekhn. izd-vo khim. lit-ry, 1953. 335 p. [Microfilm](MLRA 7:10)
(Thermochemistry)

LUR'YE,G.E., redaktor; BORESKOV,G.K., redaktor; NABEREZHNYKH,M.Ye., redaktor; PSHEZHETSKIY,S.Ya., redaktor; SLIN'KO,M.G., redaktor; TEMKIN,M.I., redaktor; CHERKEDNICHENKO,V.M., redaktor; SHPAK,Ye.G., tekhnicheskiy redaktor

[Heterogeneous catalysis in the chemical industry; papers from the All-Union Conference, 1953] Geterogennyi kataliz v khimicheskoi promyshlennosti; materialy Vsesoiuznogo soveshchaniia 1953 goda. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1955. 494 p. (MLRA 9:2)

1. Russia (1923- U.S.S.R.) Ministerstvo khimicheskoy promyshlennosti. (Catalysis)

KIREYEV, Valentin Aleksandrovich; LUR'YE,G.Ye., redaktor; SAKHAROV,V.M., redaktor; LUR'YE,M.S., tekhnicheskiy redaktor

[Course in physical chemistry] Kurs fizicheskoi khimii. Moskva, Gos. nauchno-tekhn. izd-vo khimicheskoi lit-ry, 1955. 832 p. (MLRA 9:3)

(Chemistry, Physical and theoretical)

NESMEYANOV, An.N.; BARANOV, V.I.; ZABORENKO, K.B.; RUDENKO, N.P.; PRISELKOV, Yu.A.; LUR'YE, G.Ye., redaktor; SHPAK, Ye.G., tekhnicheskiy redaktor

[Practical handbook of radiochemistry] Prakticheskoe rukovodstvo po radiokhimii. Moskva, Gos. nauchno-tekhn. izd-vo khim. lit-ry, 1956. 397 p. (MLRA 9:8)
(Radiochemistry)

SHCHEPOT'YEVA, Ye.S.; ARDASHNIKOV, S.N.; LUR'YE, G.Ye.; RAKHMANOVA, T.B.; EYDUS, L.Kh., red.; ZUYEVA, N.K., tekhn.red.

[Oxygen effect in the action of ionizing radiations] Kislorodnyi effekt pri deistvii ioniziruiushchikh izluchenii. Moskva, Gos. izd-vo med.lit-ry, Medgiz, 1959. 184 p. (MIRA 12:12)
(RADIATION--PHYSIOLOGICAL EFFECT) (OXYGEN)

KRYUKOVA, Tat'yana Aleksandrovna; SINYAKOVA, Sof'ya Il'inichna; ARKF'YEVA, Tat'yana Vasil'yevna; LUR'YE, G.Ya., red.; SHPAK, Ye.G., tekhn.red.

[Polarographic analysis] Poliarograficheskii analiz. Moskva, Gos.nauchno-tekhn.izd-vo khim.lit-ry, 1959. 772 p. (MIRA 12:10)
(Polarograph and polarography)

SHCHEPOT'YEVA, Ye.S.; ARDASHNIKOV, S.N.; LUR'YE, G.Ye.; RAKHMANOVA, T.B.

Specificity of the manifestation of oxygen effect under the action of alpha rays. Izv. AN SSSR. Ser. biol. no.4:642-652 Jl-Ag '61. (MIRA 14:9)

1. TSentral'nyy institut kurortologii i fizioterapii.
(ALPHA RAYS—PHYSIOLOGICAL EFFECT)
(PHYSIOLOGICAL CHEMISTRY)

GERASIMOV, Yakov Ivanovich, prof.; DREVING, Vladimir Petrovich; YEREMIN, Yevgeniy Nikolayevich; KISELEV, Andrey Vladimirovich; LEBEDEV, Vladimir Petrovich; PANCHENKOV, Georgiy Mitrofanovich; SHLYGIN, Aleksandr Ivanovich; NIKOL'SKIY, B.P., prof., retsenzent; SHUSHUNOV, V.A., prof., retsenzent; LUR'YE, G.Ye., red.; SHPAK, Ye.G., tekhn. red.

[Course in physical chemistry] Kurs fizicheskoi khimii. [By] IA.I.Gerasimov i dr. Moskva, Goskhimizdat, 963. Vol.1. 624 p. (MIRA 17:1)

1. Chlen-korrespondent AN SSSR (for Gerasimov, Nikol'skiy).
2. Kafedra phizicheskoy khimii Leningradskogo gosudarstvennogo universiteta (for Nikol'skiy, Shushunov).

LUR'YE, I.A.

137-58-5-10063

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 5, p 168 (USSR)

AUTHOR: Lur'ye, I.A.

TITLE: Liquid Carburizing in Cyanide-free Salts (Zhidkostnaya tsementatsiya v bestsianistykh solyakh)

PERIODICAL: Radiotekhn. proiz-vo, 1957, Nr 8, pp 36-39

ABSTRACT: Work has been done in the introduction of liquid carburizing (C) of steels: electrolytic carburizing in fused carbonates and C in fused salt baths, of which the former has not found industrial application. Experiments in liquid C were also performed with pulverized carborundum. The optimum composition of the carburizer is, in %, Na_2CO_3 75-85, NaCl 10-15, SiC 6-10. The process occurring in a carburizing bath with formation of slag that protects the surface of the bath against heat loss, evaporation, and intensive oxidation may be expressed by the following reaction:

$$2Na_2CO_3 + SiC \rightarrow \underset{\text{slag}}{Na_2SiO_3} + Na_2O + 2Co\uparrow + C.$$

Card 1/2

137-58-5-10063

Liquid Carburizing in Cyanide-free Salts

A study of the effect of temperatures and holding time on the depth of the carburized layer (CL) and the microstructure established that liquid carburizing, because of the shorter period required for heating (5 hrs) and the lower process temperature (850°C) creates conditions less favorable to grain growth, and this makes it possible to perform hardening along with the carburizing heating. This reduces the number of technical operations, improves the quality of the diffusion layer (cementite lattice is absent), and reduces deformation of the part to a minimum.

A.B.

1. Steel--Hardening 2. Cyanides--Applications

Card 2/2

LUR'YE, I.A.

PHASE I BOOK EXPLOITATION SOV/5303

Nauchno-tekhnicheskoye soveshchaniye po dempfirovaniyu kolebaniy. Kiyev, 1958.

Trudy Nauchno-tekhnicheskogo soveshchaniya po dempfirovaniyu kolebaniy, 17 - 19 dekabrya 1958 g. (Transactions of the Scientific and Technical Conference on the Damping of Vibrations, Held 17 - 19 December, 1958) Kiyev, Izd-vo AN UkrSSR, 1960. 178 p. 2,000 copies printed.

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

Editorial Board: I. N. Frantsevich, G. S. Pisarenko (Resp. Ed.), G. V. Samsonov, V. V. Grigor'yeva, and A. P. Yakovlev; Ed. of Publishing House: I. V. Kisina; Tech. Ed.: A. A. Matveychuk.

COVERAGE: The book contains 27 articles dealing with principal results of theoretical and experimental investigations of energy dissipation in mechanical vibrations carried out in the Soviet Union from 1956 to 1958. Problems of energy dissipation in materials and factors affecting it are discussed. Purportedly new methods of experimental investigation of damping of vibrations are presented. Attention is given to the recently developed nonlinear theory of calculating vibrations in elastic systems, taking energy dissipation into account. Attempts to analyze internal energy dissipation in materials using methods of mathematical statistics are discussed. Some articles deal with engineering problems in dynamics, in which damping is claimed to play a highly substantial part. Aspirant N. I. Mukhin, of the Kiyev Polytechnic Institute, is mentioned. References accompany some of the articles.

TABLE OF CONTENTS:

AVAILABLE: Library of Congress

AC/dfr/os

ISTOMIN, Pavel Aleksandrovich; NAYDENKO, O.K., kand. tekhn. nauk, dots., retsenzent; LUR'YE, I.A., kand. tekhn. nauk, starshiy nauchnyy sotr., retsenzent; PETROV, P.P., nauchnyy red.; VASIL'YEVA, N.N., red.; KOROVENKO, Yu.N., tekhn. red.

[Kinematics and dynamics of piston-type internal combustion engines with combined cycles; generalized method for analyzing crankgears of engines] Kinematika i dinamika porshnevykh DVS s kombinirovannymi skhemami; obobshchennyi metod analiza krivoshipno-shatunnykh mekhanizmov dvigatelei. Leningrad, Gos. soiuznoe izd-vo sudostroit. promyshl., 1961. 303 p. (MIRA 15:2)

(Gas and oil engines)
(Cranks and crankshafts)

NAYDENKO, Oleg Konstantinovich; PETROV, Pavel Petrovich; IVANCHENKO, N.N., kand. tekhn. nauk, retsenzent; LUR'YE, I.A., kand. tekhn. nauk, retsenzent; KLYUKIN, I.I., nauchnyy red.; NIKITINA, R.D., red.; KOROVENKO, Yu.N., tekhn. red.

[Amortization of marine engines and mechanisms]Amortizatsiia sudovykh dvigatelei i mekhanizmov. Leningrad, Sudpromgiz, 1962. 287 p. (MIRA 15:11)
(Marine engines) (Amortization)

LUR'YE, I. G.

Tree Planting

Replacing thinning with the planting of clipped overgrown seedlings; Sad i og. no. 2, 1952.

9. Monthly List of Russian Accessions, Library of Congress, May 1952, Uncl.

VARVAROV, V.K., inzh.; LUR'YE, I.G., inzh.; LITMANOVICH, I.M., inzh.

Experimental operation of a tube dryer with two successive exhaust fans. Ugol' 36 no.9:48-49 S '61. (MIRA 14:9)
(Coal preparation plants--Equipment and supplies)
(Drying apparatus)

LUR'YE, I.I.; KAFKA, B.V., prof., spetsred.

[Latest achievements in the technical and chemical control of caramel production; rapid method for determining the amount of moisture in the caramel mass] Novoe v tekhnokhimkontrole karamel'nogo proizvodstva; ekspress-metod opredeleniia kolichestva vlagi v karamel'noi masse. Moskva, GOSINTI, 1958. 9 p. (MIRA 13:6)

(Caramel)

LOKHANIN, A.K., inzh.; POGOSTIN, V.M., inzh.; Prinimali uchastiye: AGROSKINA, L.M., laborant; LUR'YE, I.I., inzh.

Calculation of the capacitance of high-voltage transformers windings. Elektrotekhnika 35 no.7:36-38 '64. (MIRA 17:11)

ACC NR: AP7004802 (A) SOURCE CODE: UR/0413/67/000/001/0142/0142

INVENTOR: Lur'ye, I. I.; Galayba, I. N.

ORG: None

TITLE: A hydraulic amplifier built into the steering mechanism of a transportation vehicle. Class 63, No. 190226

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1967, 142

TOPIC TAGS: hydraulic device, mechanical power transmission device, vehicle component

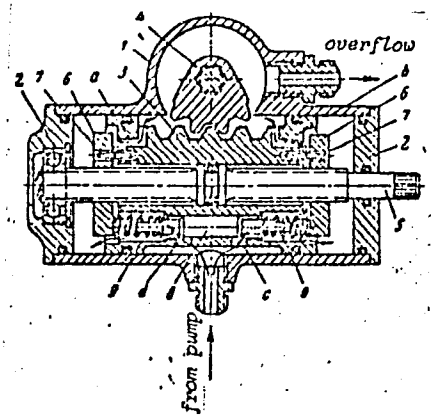
ABSTRACT: This Author's Certificate introduces a hydraulic amplifier built into the steering mechanism of a transportation vehicle. The unit contains a housing with pipe fittings for connecting the delivery and overflow lines and the cap. A piston inside the housing has teeth which mesh with a gear segment, drainage holes beginning at the ends and emerging at the overflow cavity and a discharge opening passing through the piston parallel to its axis. The discharge opening is connected in the central section to a pressurized chamber formed by a recess in the piston. The steering column passes through the piston and is held in bearings in the end caps. On both sides of the threaded section of the steering column are nuts equipped with pins to keep them stationary with respect to the piston. The distance between the inner faces of the nuts is greater than the distance between the ends of the piston where the drainage holes begin. A hydraulic distributor is located in an opening in the piston

UDC: 629.11.014.514-522.5

Card 1/2

ACC NR: AP7004802

and is turned by the nuts during rotation of the steering column. This distributor is equipped with a cylindrical slide valve loaded at both ends by springs resting on the inner faces of the nuts to simplify construction and increase the speed of the hydraulic amplifier.



1--housing; 2--caps; 3--piston; 4--gear segment; 5--steering column; 6--nuts; 7--pins; 8--cylindrical slide valve; 9--springs; a, b--drainage holes; c, d--discharge openings.

SUB CODE: 13/ SUBM DATE: 20Dec62

Card 2/2

LUR'YE, I.L., kandidat tekhnicheskikh nauk; TIMOSHENKO, N.N., kandidat tekhnicheskikh nauk.

The use of sponge and refined cast iron in smelting high-grade steels and special alloys. Stal' 15 no.12:1135-1140 D '55. (MLRA 9:2)

1.TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.

(Smelting)

POLYAKOV, Aleksandr Yul'yevich; LUR'YE, I.L., kand.tekhn.nauk, retsenzent; MAURAKH, M.A., kand.tekhn.nauk, red.; LEVIT, Ye.I., red.izd-va; ISLENT'YEVA, P.G., tekhn.red.

[Principles of vanadium metallurgy] Osnovy metallurgii vanadiia. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1959. 137 p. (MIRA 12:10)
(Vanadium--Metallurgy)

15(2)
AUTHORS: Lur'ye I. L., Knyazev, V. F., Makurov, A. V.

SOV/131-59-4-7/16

TITLE: The Operation of the Lining of a Rotary Refining Furnace (Sluzhba futerovki vrashchayushcheysya krichnoy pechi)

PERIODICAL: Ogneupory, 1959, Nr 4, pp 168-171 (USSR)

ABSTRACT: In the experimental industrial department of the Orsko-Khalilovskiy metallurgical Kombinat (OKhMK) a rotary refining furnace has operated since 1955 by means of which the technology of the refining process of chromium-nickel-iron ores of the Khalilovskiy rayon is being investigated. Also practical data on the working of the fire-proof lining are available. The operational conditions of the lining of a rotary refining furnace: The furnace is continuously charged with a mixture of brown iron ore and fine coke. The furnace is divided into three zones: The preparation zone up to 700°, the regeneration zone from 700 up to 1100° and the refining zone from 1100 up to 1300-1350°, which has most difficult operational conditions. Further the equipment of the furnace lining is described: The preparation and regeneration zone is lined with bricks with a high content of fire-clay of the Semiluki

Card 1/3

plant (GOST 1598-53) and the refining zone with highly aluminous bricks of the Podol'sk works (ChMTU 3207-52). The lining is performed according to figure 1. The furnace operates in campaigns of various duration. The causes of the interruptions are given in the table. Also the repair work is listed and the lining of the refining zone was carried out according to figure 2. Conclusions: The most considerable wear and tear of the lining of the rotation furnace OKhMK was observed in the beginning of the refining zone which is due to the influence of slags with an increased content of iron oxides. Highly aluminous bricks with an Al_2O_3-content of more than 75%, which were recommended by the UNIIO and produced by the Podol'sk works of refractories, exhibit a good stability. Large lumps which are formed on the melting of the scums exert a detrimental influence upon the working of the lining in the regeneration zone. There are 2 figures, 1 table, and 4 references, 3 of which are Soviet.

ASSOCIATION: TsNIIChERMET

The Operation of the Lining of a Rotary Refining Furnace

SOV/131-59-4-7/16

Orsko-Khalilovskiy metallurgicheskiy kombinat (Orsko-Khalilovskiy Metallurgical Kombinat)

Card 3/3

LUR'YE, I.L.; MELKONYAN, V.; SUKIASYAN, A.; KURGINYAN, S.

Organization of the production of steel and alloys for the electric industries in Armenia. Prom.Arm. 5 no.3:10-14 Mr '62. (MIRA 15:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. I.R.Bardina (for Lur'ye). 2. Nauchno-issledovatel'skiy gornometallurgicheskiy institut Sovnarkhoza Armyanskoy SSR (for Kurginyan).
(Armenia--Steel industry)

S/180/62/000/005/001/011
E075/E435

AUTHORS: Nasonov, P.Ya., Vasil'yev, Ye.N., Lur'ye, I.L., Knyazev, V.F. (Moscow)

TITLE: The reduction of iron oxides with hydrogen in a fluidized bed at an elevated pressure

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i toplivo, no.5, 1962, 29-36

TEXT: The reduction of mill scale and a Krivoy Rog ore fines with hydrogen in a fluidized bed at elevated pressures and low temperatures was investigated in order to elucidate the influence of pressure, the rate of feeding reducing gas, particle size of the starting material and temperature on the reduction process. The experiments were carried out in a laboratory apparatus made from stainless steel with a fluidized bed reactor, operating intermittently with 300 g samples. Experimental conditions: temperature from 490 to 650°C; pressure from 3 to 30 atm gauge; two rates of feeding hydrogen - 2.5 and 4.5 litre/sec. The process of reduction was controlled by measuring the decrease in

Card 1/3

The reduction of iron ...

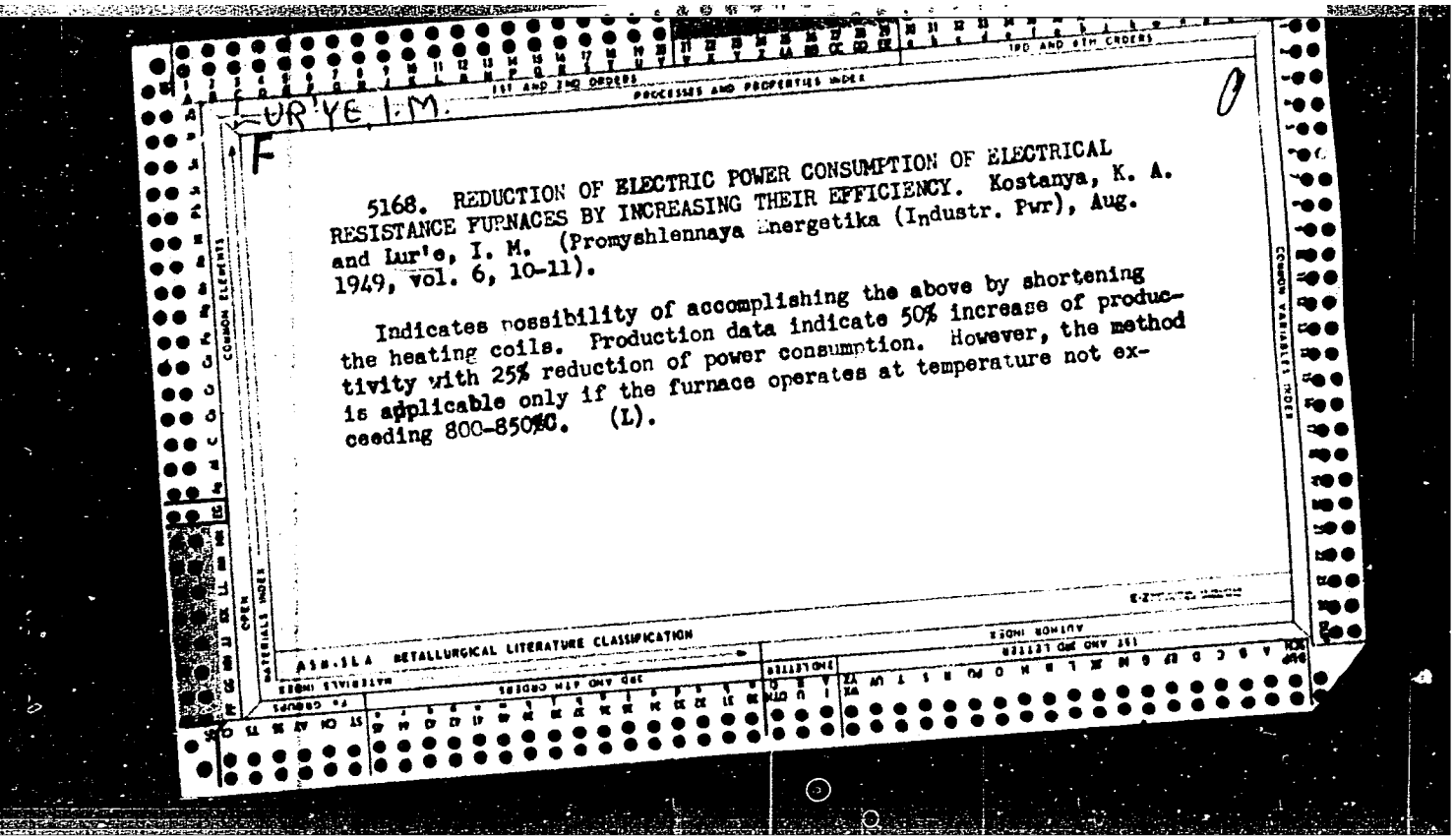
the amount of hydrogen in the gas holder. In the lower pressure range (up to about 9 atm) an increase in pressure was found to lead to an intensification of the process, even without an increase in the rate of supply of hydrogen to the reactor. An increase in pressure from 3 to 4 atm had a considerably higher effect than an increase from 4 to 5 or from 5 to 6 atm (the corresponding increases in the consumption of hydrogen read from the graph were about 36, 14 and 13% respectively). In the higher pressure range the increase in the rate of reduction is due to an increase in the supply of hydrogen to the reactor which can be made without increasing dust losses. Optimal reduction temperatures at a pressure of the gaseous phase of 30 atm and a hydrogen feed rate of 0.3 litre/sec per 1 cm^2 of the free cross-sectional area of the reactor are: to obtain 70 to 75% reduction - 500 to 520°C; to complete the reduction process - 550 to 560°C. Under the above temperature conditions neither sintering of ore particles nor sticking of particles to the walls of the reactor was observed. For reducing scale the maximum temperature of the process can be raised to 650°C. Within the range of 0.3 to

Card 2/3

0.10 mm the particle size of the scale has no influence on the reduction process. The iron powder produced is pyrophoric. The minimum annealing temperature of the iron powder necessary to remove its pyrophoricity without soaking and with a 30 minute soaking was found to be 780 and 750°C respectively. There are 4 figures.

SUBMITTED: March 15, 1962

Card 3/3



LUR'YE, I. M.

F

5168. REDUCTION OF ELECTRIC POWER CONSUMPTION OF ELECTRICAL RESISTANCE FURNACES BY INCREASING THEIR EFFICIENCY. Kostanya, K. A. and Lur'e, I. M. (Promyshlennaya Energetika (Industr. Pwr), Aug. 1949, vol. 6, 10-11).

Indicates possibility of accomplishing the above by shortening the heating coils. Production data indicate 50% increase of productivity with 25% reduction of power consumption. However, the method is applicable only if the furnace operates at temperature not exceeding 800-850°C. (L).

TIKHOMIROV, I.D.; LUR'YE, I.M., starshiy inzh.

Every invention should be filed. Izobr.i rats. no.6:1-2 Je '62. (MIRA 15:6)

1. Zamestitel' zaveduyushchego otdelom registratsii nauchno-issledovatel'skikh rabot Komiteta po delam izobreteniy i otkrytiy (for Tikhomirov). 2. Otdel registratsii nauchno-issledovatel'skikh rabot Komiteta po delam izobreteniy i otkrytiy (for Lur'ye). (Inventions)

LUR'YE, I.N., LIPSKIY, M.P. and KARNAUKHOV, M.M.

"Shop with 500-Ton Open-Hearth Furnaces, Soviet Metallurgy, No 3, 1937.

LUR'YE, I. N.

"Modern Steel-Smelting Shops of Gipromez Projects"
Gipromez Stal' No 2, 1956, pp 215-135

Translation M-3,053,059, 4 Jan 57

LUR'YE, I.N., inzhener.

Modern steel melting plant among the plans of the state Institute for the Planning of Metallurgical Plants. Stal' 16 no.2:125-135 F '56. (MLRA 9:5)

1. Gipromez.
(Smelting furnaces) (Metallurgical plants)

LUR'YE, I.N., referent.

Modern Thomas steel plant. Biul. TSNIICHM no.15:47-55 '57.
(Bessemer process) (Metallurgical plants) (MIRA 11:5)

LUR'YE, I.N., referent.

The 550 ton capacity open-hearth furnace. Biul. TSNIICHM no.16:53 '57. (MIRA 11:5)
(United States--Open-hearth furnaces)

LUR'YE, I.N.

LUR'YE, I.N., referent.

Using shaped charges to open the tapping hole in open-hearth furnaces (from "Stahl und Eisen" no.9, 1957). Biul. TSNIICHM no.23:47 '57. (MIRA 11:2)

(Germany, West--Open-hearth furnaces)

LUR'YE, I.N., referent

Open-hearth furnace with two stacks and artificial draft (from "Stahl und Eisen" no. 24, 1957). Biul. TSNIICHM no.7:50-53 '58. (MIRA 11:6)

(Germany, West--Open-hearth furnaces)

LUR'YE, I.N., inzh.

Open-hearth furnace production in the United States. Biul. TSIICHM no.9:7-16 '60. (MIRA 15:4)
(United States--Open-hearth furnaces)

TRUBIN, Konstantin Georgiyevich; OYKS, Grigoriy Naumovich, prof., doktor tekhn. nauk; CHERNENKO, Mikhail Avksent'yevich; LUR'YE, Il'ya Naumovich; TRUBETSKOV, Mikhail Mikhaylovich [deceased]; VESELKOV, N.G., red.; VAGIN, A.A., red. izd-va; MIKHAYLOVA, V.V., tekhn. red.

[Metallurgy of steel: the open-hearth process; design and equipment of open-hearth furnaces and plants] Metallurgiia stali: martenovskii protsess; konstruktsii i oborudovanie martenovskikh pechei i tsekhov. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1961. 448 p. (MIRA 14:8)
(Open-hearth furnaces--Design and construction)

LURYE, I.S.

Distr: 4E4j/4E2c

Automatization of potassium-salt manufacture. I. S. Lur'e, G. G. Kolyukov, and A. G. Zlobinskii. *Nauka i Prom.* 2, 707–73(1957).—Description of plant.
I. Bencowitz

4
2

1/1

LUR'YE, I. N.

PHASE I BOOK EXPLOITATION SOV/5407

Afanas'yev, S.G., Candidate of Technical Sciences; B.S. Barskiy, Docent; Yu.Ye. Yefroymovich, Candidate of Technical Sciences; V.Yu. Kaganov, Candidate of Technical Sciences; B.N. Katcoin, Engineer; V.Ye. Loykin, Engineer; I.N. Lur'ye, Engineer; O.A. Mikhaylov, Candidate of Technical Sciences; A.Ye. Netesin, Engineer; M.Ye. Orman, Engineer; V.S. Rutes, Candidate of Technical Sciences; and Ye.A. Shnayerov, Candidate of Technical Sciences.

Tekhnicheskiy progress v chernoy metallurgii SSSR; staleplavil'noye proizvodstvo (Technological Progress in Soviet Ferrous Metallurgy; Steelmaking Industry) Moscow, Metallurgizdat, 1961. 495 p. Errata slip inserted. 3,200 copies printed.

Sponsoring Agencies: Gosudarstvennyy nauchno-tekhnicheskiy komitet Soveta Ministrov SSSR. Tsentral'nyy institut informatsii chernoy metallurgii.

Ed. and Scientific Ed.: G.N. Oyks, Professor, Doctor of Technical Sciences; Director of the Central Institute for Information on Ferrous Metallurgy: N.B. Arutyunov; Chief Ed.: Ya.A. Gol'din; Ed. of the Central Institute for Information on Ferrous Metallurgy: L.I. Khoras; Ed. of Publishing House: V.I. Ptitsyna; Tech. Ed.: P.G. Islent'yeva.

~~Card 1/~~

SOV/5407

Technological Progress (Cont.)

PURPOSE: This book is intended for technical and scientific personnel in the metallurgical and machine industries, and may also be used as a textbook by students in schools of higher education and tekhnikums.

COVERAGE: A review is made of the basic stages in the development of open-hearth, electric-hearth, electric-furnace, and converter steelmaking processes in the USSR. The present status of ferrous metallurgy and prospects for the future are examined. Present trends in the design, automation, and mechanization of steelmaking equipment are given. The state of the organization and mechanization of repairs in steelmaking plants, and methods of equipment maintenance are described. Problems in the process of steelmaking (the use of oxygen and vacuum, processing of phosphorus irons, improvement of the manufacture of individual types of steel, and steel casting) are discussed at length. No personalities are mentioned. There are 329 references: 317 Soviet, 9 English, 2 German, and 1 French.

TABLE OF CONTENTS:

STEEL MANUFACTURE IN OPEN-HEARTH FURNACES

Card 2/

LUR'YE, I.N., referent

State of open-hearth furnace production in the German Federal Republic [from "Stahl und Eisen," no. 11, 1960]. Biul. TSIICHM no.2:49-51 '61. (MIRA 14:9)
(Germany, West--Open-hearth furnaces)

FRONTINSKIY, Boris Vladimirovich; LUR'YE, I.N., red.; LANOVSKAYA, M.R., red. izd-va; KARASEV, A.I., tekhn. red.

[Output of open-heart furnaces] Proizvoditel'nost' martenovskikh pechei. Moskva, Metallurgizdat, 1962. 159 p. (MIRA 15:7)
(Open-hearth furnaces)

LUR'YE, I.N.

Converter operations with top oxygen blow in foreign countries (from foreign journals). Stal' 22 no.9:802-807 S '62. (MIRA 15:11)

(Converters)

LUR'YE, I.N.

Expanion of steel smelting equipment and plants in the U.S.S.R.
Stal' 22 no.11:983-993 N '62. (MIRA 15:11)
(Open-hearth furnaces--Design and construction)
(Steel--Electrometallurgy)

LUR'YE, I.N., inzh.

"Tilting open-hearth furnaces" by V.V.Leporskii, E.A.Kapustin, G.M.Glinkov, and V.A.Makovskii. Reviewed by I.N.Lur'e. Stal' 23 no.8:718-719 Ag '63. (MIRA 16:9)
(Open-hearth furnaces) (Leporskii, V.V.) (Kapustin, E.A.) (Glinkov, G.M.) (Makovskii, V.A.)

LUR'YE, I.N., inzh.

Using oxygen in open-hearth furnace practice in the United States. Stal' 23 no.10:905-907 O '63. (MIRA 16:11)

LUR'YE, I.N.

[Oxygen-blown converter processes of steel production; review of foreign patents] Kislorodno-konvertornye protsessy proizvodstva stali; obzor inostrannykh patentov. Moskva, TSentr. nauchno-issl. in-t patentnoi informatsii i tekhniko-ekon. issledovanii, 1964. 39 p. (MIRA 18:6)

LUR'YE, I. S.; MASLOV, V. I.

Increasing the service time of winter roads; based on materials collected in the Komi A.S.S.R. Merzl. issl. no.1:318-329 '61. (MIRA 16:1)

(Sytyvkar region—Forest roads)
(Sytyvkar region—Roads, Ice)

LUR'YE, I. Ye.

534.612.082.72-8
964
Capacitance Analyser of Sound Field. V. A. Zverev, V. M. Bokov & L. I. Lur'e. (*Akust. Zh.*, July–Sept. 1955, Vol. 1, No. 3, pp. 218–220.) A circuit arrangement is described in which a capacitance change corresponding to the fractional change of the dielectric constant of water due to a sound field of frequency 85 kc/s is caused to modulate a r.f. signal; the change in the dielectric constant is of the order of 1 part in 10^4 for a pressure change of 10^6 bar.

PH (2)

Phys. Tech. Res. Inst., Gor'kiy State U.

L 21006-65 EPA/EPF(c)/EPF(n)-2/EPR/EWT(m)/EPA(bb)-2/T/EWP(f)/ Pr-4/Ps-4/Pab-4
ASD(a)-5/AEDC(b)/ASD(p)-3/AFMD(p)/ AFTC(b)/AFTC(a)/ESD(dp) WW/WE

ACCESSION NR: AP5001422 S/0229/64/000/012/0024/0026

AUTHOR: Lur'ye, I. Yu. (Engineer)

TITLE: Mathematical modeling of a gas turbine using real fuel supply equipment

SOURCE: Sudostroyeniye, no. 12, 1964, 24-26

TOPIC TAGS: gas turbine, turbocompressor, gas turbine control, analog system/ MN 7 analog computer, MN 8 analog computer

ABSTRACT: The differential equations for the turbocompressor and turbine of a two-shaft gas turbine unit (GTU) were used with actual fuel supply equipment to study the overall performance of the GTU. The differential equations for the compressor and turbine were taken as:

$$(T_1 p + 1)\,\Delta\omega_1 = k_{11}\Delta G_T e^{-p\tau} - k_{12}\Delta\omega_2 \qquad (T_2 p + 1)\,\Delta\omega_2 = k_{21}\Delta G_T e^{-p\tau} + k_{22}\Delta\omega_1 - k_\varphi\Delta\varphi$$

respectively (where G_T = fuel flow; t = combustion chamber time delay;

Card 1/6

$$T_1 = \frac{J_1}{-\frac{\partial M_{T_1}}{\partial \omega_1} + \frac{\partial M_K}{\partial \omega_1}}$$

$$k_{11} = \frac{\frac{\partial M_{T_1}}{\partial \omega_T}}{-\frac{\partial M_{T_1}}{\partial \omega_1} + \frac{\partial M_K}{\partial \omega_1}}$$

$$k_{12} = \frac{\frac{\partial M_K}{\partial \omega_2}}{-\frac{\partial M_{T_1}}{\partial \omega_1} + \frac{\partial M_K}{\partial \omega_1}}$$

$$T_2 = \frac{J_2}{-\frac{\partial M_{T_2}}{\partial \omega_2} + \frac{\partial M_K}{\partial \omega_2}}$$

Card 2/6

$$k_{z1} = \frac{\frac{\partial M_{T_2}}{\partial G_1}}{-\frac{\partial M_{T_2}}{\partial \omega_2} + \frac{\partial M_a}{\partial \omega_2}}$$

$$k_\Phi = \frac{\frac{\partial M_a}{\partial \Phi}}{-\frac{\partial M_{T_2}}{\partial \omega_2} + \frac{\partial M_a}{\partial \omega_2}}$$

$$\zeta_{z2} = \frac{\frac{\partial M_{T_2}}{\partial \omega_1}}{\frac{\partial M_a}{\partial \omega_1} - \frac{\partial M_{T_2}}{\partial \omega_1}}$$

with subscripts 1 and 2 referring to compressor and turbine variables respectively, and other nomenclature as normally used in GTU terminology). In the GTU under consideration, the compressor and turbine speed regulators required a 2-3 kw output from the compressor model and 100-200 w. from the turbine model. The block diagram of the complete analog model is shown in Fig. 1 on the Enclosures. A

L 21006-65
ACCESSION NR: AP5001422

curve of $k_{reg} = f(t)$ (where k_{reg} = critical gain of turbocompressor regulator) for stable operation was obtained with this model (see curve 3 in Fig. 2 on the Enclosures). Curves 1 and 2 in Fig. 2 were obtained by modeling the whole system, including the fuel supply equipment, on an MN-7 analog computer, without considering speed regulator inertia and with regulator inertia, respectively. It was found that the mixed model (Figs. 1 and 2, curve 3) agreed best with experimental results. Orig. art. has: 3 figures and 6 formulas.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 02

SUB CODE: PR NO REF SOV: 000 OTHER: 000

Card 4/6

L 21006-65

ENCLOSURE: 01

ACCESSION NR: AP5001422

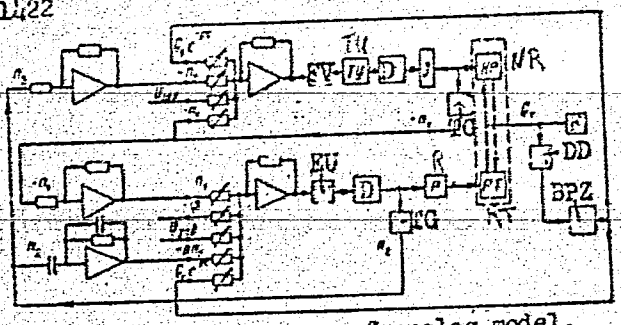


Fig. 1. Block-diagram of analog model.

FV- phase inverter, TU- thyrotron amplifier; D- drive; J- flywheel; TG- tachometer generator; NR- turbocompressor pump regulator; DD- pressure transducer; F- nozzle; BPZ- constant time delay; EU- electronic amplifier; R- reduction; RT- turbine regulator.

Card 5/6

L 21006-65
ACCESSION NR: AP5001422

ENCLOSURE: 02

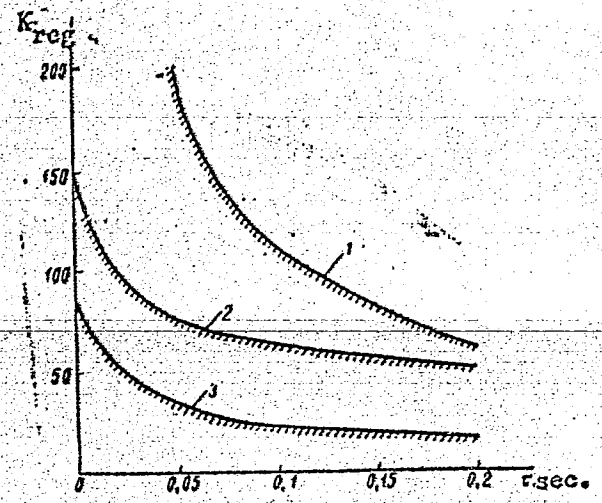


Fig. 2. Stable regions of GTU operation.

Card 6/6

FREYDZON, L.R., doktor tekhn. nauk; [illegible], [illegible], inzh.

Increasing the reliability of gyroscopic drive systems. Sudostroenie 30 no.9:12-15 S '64. (MIRA 17:11)

LUR'YE, K.A.

Diffraction of a flat electromagnetic wave on an ideally conducting round disk. Zhur.tekh.fiz. 29 no.12:1421-1433 D '59. (MIRA 14:6)

1. Fiziko-tekhnicheskiy institut AN SSSR.
(Electromagnetic waves—Diffraction)

LUB'YE, K.A.

One class of plane problems in magnetohydrodynamics. Zhur. tekhn. fiz. 30 no.6:736-738 Je '60. (MIRA 13:8)

1. Fiziko-tekhnicheskiy institut AN SSSR, Leningrad.
(Magnetohydrodynamics)

S/057/60/030/009/005/021
B019/B054

26.1410

AUTHOR: Lur'ye, K. A.

TITLE: The Plane Problem of Solids Around Which There Flows an Incompressible Liquid of Finite Conductivity in the Presence of a Magnetic Field Perpendicular to the Flow

PERIODICAL: Zhurnal tekhnicheskoy fiziki, 1960, Vol. 30, No. 9, pp. 1035-1040

TEXT: The author had earlier suggested a method of solving the problem mentioned in the title (Ref. 1). With the use of results obtained there, the author investigates here the flow of an ideal liquid of finite conductivity around a symmetrical smooth profile in a magnetic field perpendicular to the flow. First, he considers a parabolic cylinder (Fig. 1) around which there flows an incompressible liquid of the conductivity σ. He introduces a complex flow potential, and then shows how to derive relations for the magnetic field, and also for the electric field, from the induction equations and the boundary conditions used here (see Ref.1). Next, he studies the problem in the plane of the complex potential, and investigates the whole problem by the method suggested by G. A. Grinberg

/B

Card 1/2

The Plane Problem of Solids Around Which There Flows an Incompressible Liquid of Finite Conductivity in the Presence of a Magnetic Field Perpendicular to the Flow

S/057/60/030/009/005/021
B019/B054

(Ref. 2). In this connection, he investigates, however, the limiting case of a similar problem in which the parabolic cylinder is replaced by a circular region (Fig. 3). Finally, he passes over from the mathematical planes to the physical plane, and obtains an asymptotic expression for the field. From this expression, the author concludes that the magnetic field decreases exponentially with increasing distance. This gives evidence of a convergence of the integral for the magnetic energy in infinity, and a usable calculation of the Joulean losses is rendered possible. The author thanks Professor G. A. Grinberg and Yu. V. Vandakurov for their interest and advice. There are 3 figures and 3 Soviet references.

ASSOCIATION: Fiziko-tekhnicheskiy institut AN SSSR, Leningrad
(Institute of Physics and Technology of the AS USSR, Leningrad)

SUBMITTED: April 18, 1960

Card 2/2

S/057/61/031/005/018/020
B104/B205

26.2331

AUTHOR: Lur'ye, K. A.

TITLE: Solution of equations for the one-dimensional motion of a compressible gas of finite conductivity in transverse electric and magnetic fields (steady-state case)

PERIODICAL: Zhurnal tekhnicheskoy fiziki, v. 31, no. 5, 1961, 623-627

TEXT: In a book by F. A. Baum, S. A. Kaplan, and K. P. Stanyukovich (Vvedeniye v kosmicheskuyu gazodinamiki. Fizmatgiz, 261, 1958), the magnetogasdynamic equations for the one-dimensional motion of a compressible gas in electric and magnetic fields were transformed into quadratures. A paper by I. B. Chekmarev (PMM, XXIV, 2, 382, 1960) contains a solution to the particular case where an electric field is absent. The present author has derived a solution to the steady-state problem in the presence of an electric field. The solution is given in the form of closed formulas containing elliptic functions. The equations are set up on the assumption that $\vec{v} = (v_1,0,0)$, $\vec{E} = (0,E,0)$, $\vec{H} = (0,0,H_1)$, and that no heat is generated. Viscosity and thermal conductivity are neglected.

Card 1/5

22787

Solution of equations...

The reduced variables $\rho=\frac{\rho_1}{\rho_0}$, $p=\frac{p_1}{p_0}$, $T=\frac{T_1}{T_0}$, $v=\frac{v_1}{v_0}$, $H=\frac{H_1}{H_0}$, $x=\frac{x_1}{L}$ (1)

and the parameters $B=\frac{\sigma E}{v_0 H_0}=\text{const}$, $M_0^2=\frac{\rho_0 v_0^2}{\gamma p_0}$, $\gamma=\frac{C_p}{C_v}$, $S=\frac{H_0^2}{4\pi\rho_0 v_0^2}$, $R_m=\frac{4\pi\sigma L v_0}{c^2}$ (2)

are introduced and, thus, one obtains the system

$$\rho v\frac{dv}{dx}=-\frac{d}{dx}\left(\frac{1}{\gamma M_0^2}p+S\frac{H^2}{2}\right), \tag{3}$$

$$\frac{d}{dx}\rho v=0, \tag{4}$$

$$\frac{dH}{dx}=R_m[vH-B], \tag{5}$$

$$p=\rho T, \tag{6}$$

$$\rho v\frac{d}{dx}\left[\frac{v^2}{2}+\frac{1}{(\gamma-1)M_0^2}T\right]+SB\frac{dH}{dx}=0. \tag{7}$$

For x = 0 it is supposed that ρ = p = T = v = H = 1. From this the solutions

$$v+\frac{p}{\gamma M_0^2}+\frac{S}{2}H^2=h=1+\frac{1}{\gamma M_0^2}+\frac{S}{2}, \tag{9}$$

$$\rho v=1. \tag{10}$$

Card 2/5

Solution of equations...

$$T=\frac{p}{\rho}=p\upsilon=\gamma M_0^2\left[h\upsilon-\upsilon^2-\frac{S}{2}\upsilon H^2\right], \qquad (11)$$

$$H^2-2B\frac{\gamma-1}{\gamma\upsilon}H+2B\frac{\gamma-1}{\gamma\upsilon}-\frac{2}{S\upsilon}\left[h\upsilon-\frac{\gamma+1}{2\gamma}\upsilon^2-h+\frac{\gamma+1}{2\gamma}+\frac{S}{2}\right]=0. \qquad (12)$$

are derived. Using (5) and (12) it is possible to represent the velocity v and the magnetic field H as functions of x. For this purpose, the new variable $z = vH$ (13) is introduced into Eqs. (5) and (12); with the aid of the functions $\lambda = 2z-2B\frac{\gamma-1}{\gamma}$ (16) and $\eta=\frac{2h}{3S}\left(\frac{\gamma S}{\gamma+1}\right)^{2/3}-\left(\frac{\gamma+1}{\gamma S}\right)^{1/3}v$ (17), the equation $\lambda^2 = 4\eta^3 - g_2\eta - g_3$ (18) is derived, where g_2 and g_3 are given by the relations

$$g_2=\frac{8}{S}\left(\frac{\gamma S}{\gamma+1}\right)^{1/3}\left\{\frac{2h^2}{3}\frac{\gamma}{\gamma+1}-h+\frac{\gamma+1}{2\gamma}+\frac{S}{2}-BS\frac{\gamma-1}{\gamma}\right\}, \qquad (19)$$

and

$$g_3=4\left\{-\frac{16h^3}{27S}\left(\frac{\gamma}{\gamma+1}\right)^2+\frac{4h}{3S}\frac{\gamma}{\gamma+1}\left[h-\frac{\gamma+1}{2\gamma}-\frac{S}{2}+BS\frac{\gamma-1}{\gamma}\right]-B^2\left(\frac{\gamma-1}{\gamma}\right)^2\right\}. \qquad (20).$$

The substitution $\lambda = \Phi'(t)$ and $\eta = \Phi(t)$ (21), where $\Phi(t)$ is an elliptic function with the real invariants g_2 and g_3, satisfies Eq. (18). The

Solution of equations...

equation $\frac{d}{dx}\frac{z}{v} = R_m\{z - B\}$ (14) determines x as a function of t, and using (16), (17), and (21), one obtains the solution

$$R_m x = \frac{2}{\Phi'(t) - \frac{2B}{\gamma} - 2\left(\frac{\gamma S}{\gamma+1}\right)^{1/3}\Phi(t) + \frac{4h\gamma}{3(\gamma+1)}} + \frac{\Phi'(t) + 2B\frac{\gamma-1}{\gamma}}{} +$$

$$+ 2\int \frac{\Phi'(t) + 2B\frac{\gamma-1}{\gamma}}{-2\left(\frac{\gamma S}{\gamma+1}\right)^{1/3}\Phi(t) + \frac{4h\gamma}{3(\gamma+1)}} \frac{\Phi''(t)\,dt}{\left[\Phi'(t) - \frac{2B}{\gamma}\right]^2} + \text{const.} \qquad (23)$$

Using the notations

$$\alpha = -\frac{2h}{3S}\left(\frac{\gamma S}{\gamma+1}\right)^{1/3},\quad \gamma_1 = 2B\frac{\gamma-1}{\gamma},\quad \gamma_1 - 2B = -\frac{2B}{\gamma} = \gamma_2, \qquad (24)$$

the integral appearing in (23) can be represented in the form

$$Q = -\frac{1}{2\left(\frac{\gamma S}{\gamma+1}\right)^{1/3}}\int \frac{\Phi'(t) + \gamma_1}{\Phi(t) + \alpha}\frac{\Phi''(t)}{[\Phi'(t) + \gamma_2]^2}\,dt. \qquad (25)$$

The representation

$$R_m x = \frac{2}{\left[\Phi'(t) - \frac{2B}{\gamma}\right]\left[-2\left(\frac{\gamma S}{\gamma+1}\right)^{1/3}\Phi(t) + \frac{4h\gamma}{3(\gamma+1)}\right]} \frac{\Phi'(t) + 2B\frac{\gamma-1}{\gamma}}{} - \frac{1}{1-B} -$$

Card 4/5

Solution of equations...

$$-\left(\frac{\gamma+1}{\gamma}\right)^{1/2}\left\{Q_{21}(t)-Q_{21}(\beta)+Q_{22}(t)-Q_{22}(\beta)+\right.$$
$$\left.+\frac{B}{\gamma}[Q_{11}(t)-Q_{11}(\beta)+Q_{12}(t)-Q_{12}(\beta)]\right\}. \qquad (28)$$

is finally obtained for (23). There are 2 Soviet-bloc references.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. A. F. Ioffe AN SSSR Leningrad (Institute of Physics and Technology imeni A. F. Ioffe, AS USSR, Leningrad)

SUBMITTED: December 6, 1960

Card 5/5

31242
S/207/61/000/005/001/015
D237/D303

10.2000
26.2311

AUTHOR: Lur'ye, K.A. (Leningrad)

TITLE: One-dimensional model of a magnetic gas-dynamic energy converter

PERIODICAL: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 5, 1961, 3 - 9

TEXT: When a compressible, conducting gas moves between two parallel conducting plates in the x-direction (Fig. 1) in presence of magnetic field H_o in the z-direction, an electric current flows in the y-direction. Conversely, application of an external emf. to the plates results in an additional pressure gradient in the x-direction, depending on the magnetic field. The acceleration action of the pressure gradient corresponds to absorption of energy, while the retarding one corresponds to emission of energy. It is assumed that

$$v = v_1 i_x,\ H = H_o + H_* = H_1 i_z,\ j = \frac{c}{4\pi} \operatorname{rot} H = -\frac{c}{4\pi} \frac{dH_1}{dxz} i_y$$

Card 1/4

One-dimensional model of a ...

and $E = E_y$. Then the equations of magnetic gas-dynamics are

$$p = \rho T, \quad \frac{d}{dx}\left[\frac{v^2}{2} + \frac{pv}{(\gamma - 1)M_0^2} + SBH\right] = 0 \qquad (1.2)$$

where $M_0^2 = \frac{\rho_0 v_0^2}{\gamma p_0}$, $\gamma = \frac{c_p}{c_v}$, $S = \frac{H_0^2}{\rho_0 v_0^2}$, $B = \frac{[illegible]}{V_0 H_0}$, $R_m = \frac{4\pi\sigma L v_0}{c^2}$. (1.3)

From the latter, together with

$$M_1 = \frac{v_1}{a_1} = \left(\frac{[illegible] v_1^2}{\gamma p_1}\right)^{1/2} = \frac{v_1}{\sqrt{\gamma R T_1}} \qquad (2.1)$$

and

$$\zeta = vH, \qquad (2.6)$$

the author deduces that the point $\zeta = B$ divides the interval $(-\infty, \infty)$ of possible values of ζ into two regions with no stable, continuous transition between them. The second characteristic point is

Card 2/4

One-dimensional model of a ...

$\zeta = B(\gamma - 1)/\gamma$, where $(M_1^2 - 1)dv = 0$, i.e. either $M_1^2 = 1$ or $dv = 0$, with both cases possible. The work done is then considered. It can assume the following aspects: If $jH_1 < 0$, then the gas emits energy, work is done against the field and ponderomotive forces retard the gas, while for $jH_1 > 0$, work is done on the gas by ponderomotive forces, the gas absorbs energy with resulting acceleration. Four formal cases are discussed, namely

$$jH_1 < 0, \quad jB < 0 \tag{3.1}$$

where the gas generates energy which is absorbed by the field,

$$jH_1 > 0, \quad jB > 0 \tag{3.2}$$

where the gas absorbs energy from the field,

$$jH_1 < 0, \quad jB > 0 \tag{3.3}$$

where both field and gas release energy which is converted into heat, and

$$jH_1 > 0, \quad jB < 0 \tag{3.4}$$

which is physically meaningless. It is shown that the transition

Card 3/4

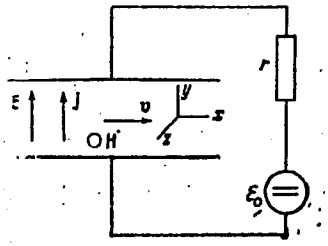
One-dimensional model of a ...

(Eq. 3.2) → (Eq. 3.3) is possible, but that the converse is not true. There are 4 figures and 7 references: 6 Soviet-bloc and 1 non-Soviet-bloc.

ASSOCIATION: Fiziko-tekhnicheskiy institut im. Ioffe, AN SSSR (Physico-Technical Institute im. Ioffe, AS USSR)

SUBMITTED: July 22, 1961

Fig. 1.



Фиг. 1.

Card 4/4

38089
S/040/62/026/003/012/020
D407/D301

24.1000

AUTHOR: Lur'ye, K.A. (Leningrad)

TITLE: On the propagation of disturbances in systems with nonlinear boundary-conditions

PERIODICAL: Prikladnaya matematika i mekhanika, v. 26, no. 3, 1962, 503 - 510

TEXT: A general method is proposed for solving the one-dimensional wave equation, which is not based on the d'Alembert representation or any specific type of initial- and boundary conditions. In the second part of the article, the oscillations are analyzed of a system, consisting of a pipe line and a stop valve equipped with a nonlinear spring. The wave equation

$$u_{\tau\tau} = u_{xx} \quad (\tau = at) \tag{1.1}$$

is considered. It is required to solve it under initial and boundary conditions which contain a nonlinear function F. The solution is expressed as the sum of 2 functions f_1 and f_2. A nonlinear differen-

Card 1/3

tial-difference equation is obtained. The function f_2 cannot be exactly determined by integration. Thereupon the problem is solved by another method: It is assumed that the value of $u(x, \tau)$ at $x = 0$, is a known function of time, denoted by $v(\tau)$. This problem leads to the nonlinear differential-difference equation

$$V'(\tau) + 2\sum_{n=1}^{\infty} v'(\tau - 2nl) + F[V(\tau)] = \Phi'(\tau) + \Psi(\tau) \tag{1.20}$$

which is integrated for the initial condition $V(0) = \varphi(0)$. This method is not based on the d'Alembert representation of the general solution of the original equation. Thus, for the one-dimensional wave equation, one obtains (instead of Eq. (1.20)) the integro-differential equation

$$V'(\tau) + 2\sum_{n=1}^{\infty} v'(\tau - 2nl) - c\int_0^{\tau} V(\tau - \theta)\frac{I_1(c\theta)}{\theta}d\theta - \tag{1.22}$$

$$-2c\sum_{n=1}^{\infty}\int_{2nl}^{\tau} v(\tau - \theta)\frac{I_1(c\sqrt{\theta^2 - 4n^2l^2})}{\sqrt{\theta^2 - 4n^2l^2}}d\theta + F[V(\tau)] = \Phi'(\tau) + \Psi(\tau).$$

Card 2/3

Further, the oscillations in the system pipeline-valve-nonlinear spring, are considered. The length of the channel is denoted by l and the mass of the spring by M. As a result of the pressure p_o, a fluid flows through the channel. Small deviations from the stationary state are considered, due to sudden pressure variations at the end x = 0 of the channel. The equations of motion and boundary conditions are set up. Dimensionless variables are introduced. A second-order differential-difference equation is obtained for the arbitrary function $F(\tau)$. This is solved by methods, given in the references. After transformations, one obtains a functional equation which is solved graphically. Periodic solutions are obtained and their stability is investigated. There are 2 figures.

SUBMITTED: December 13, 1961

Card 3/3

ACCESSION NR: AP4015970 S/0040/63/027/005/0842/0853

AUTHOR: Lur'ye, K. A. (Leningrad)

TITLE: Mayer Bolza problem for multiple integrals and optimization of the behavior of systems with distributed parameters

SOURCE: Prikl. matem. i mekhan., v. 27, no. 5, 1963, 842-853

TOPIC TAGS: Mayer Bolza problem, multiple integral, optimization, optimal behaviro, distributed parameters, dynamic programming, Pontryagin maximum principle, integral relation, partial differential equation, ordinary differential equation, calculus of variations

ABSTRACT: The problem of optimization of systems with distributed parameters has been studied from various points of view, such as Bellman's dynamic programming, Pontryagin's maximum principle, and integral relations. In the present work the author obtains necessary conditions for optimality by using the methods of classical calculus of variations. He formulates the problem as a Mayer Bolza problem for multiple integrals with constraints given as both partial and ordinary

Card 1/2

ACCESSION NR: AP4015970

differential equations. He obtains necessary conditions for stationarity and the necessary Weierstrass condition; from the latter he derives an analog of the maximum principle, and for simplicity he works with two independent variables. He studies optimization of systems with distributed parameters in the framework of studying solutions of the corresponding canonical systems. For accomplishing the proper variational approach to the logical scheme, it is necessary to investigate problems related to the optimality principle of Bellman and the Hamilton-Jacobi equation. Orig. art. has: 62 formulas and 1 diagram.

ASSOCIATION: none

SUBMITTED: 17May63	DATE ACQ: 21Nov63	ENCL: 00
SUB CODE: MM	NO REF SOV: 006	OTHER: 005

Card 2/2

ACCESSION NR: AP4034269 S/0207/64/000/002/0029/0039

AUTHOR: Lur'ye, K. A. (Leningrad)

TITLE: The problem of optimal distribution of conductivity for a fluid moving in an exterior magnetic field

SOURCE: Zhurnal prikladnoy mekhaniki i tekhnicheskoy fiziki, no. 2, 1964, 29-39

TOPIC TAGS: fluid conductivity, plane channel, dielectric wall, ideal conductor, joule heat, optimal control, magnetic field

ABSTRACT: A conductive fluid whose conductivity is restricted to the interval $(\sigma_{min}, \sigma_{max})$ moves with constant velocity v(V,0,0) in a plane channel of width 2δ. The walls of the channel are everywhere dielectric with the exception of two portions of equal length 2λ on walls directly opposite each other and consisting of ideally conductive material. The conductive portions are joined by a load R. With application of an exterior magnetic field B{0,0,-B(x)} across the load chain there flows an electric current

$$I = \int_{-\lambda}^{\lambda} \zeta^2 (x, \pm\delta)\, dx \qquad (1)$$

Card 1/3

and, in the fluid, joule heat is distinguished

$$Q = \int_{-\infty}^{\infty}\int_{-\delta}^{\delta} \rho\,[(\zeta^1)^2 + (\zeta^2)^2]\,dx\,dy \qquad (2)$$

The assumption V = const is justified in the case of small values of the magnetic Reynolds number; the induced field can be neglected, and the current distribution $j(\zeta^1,\zeta^2)$ and the electric field potential z^1 are described by

$$\frac{\partial z^1}{\partial x} = -\rho\zeta^1, \quad \frac{\partial z^1}{\partial y} = -\rho\zeta^2 + \frac{VB}{c}, \quad \frac{\partial}{\partial x}\left(\frac{VB}{c} - \rho\zeta^2\right) + \frac{\partial}{\partial y}\rho\zeta^1 = 0$$
$$\frac{\partial z^2}{\partial x} = \zeta^2, \quad \frac{\partial z^2}{\partial y} = -\zeta^1, \quad \frac{\partial \zeta^1}{\partial x} + \frac{\partial \zeta^2}{\partial y} = 0 \qquad (3)$$

where z^2 is the flow function, and $\rho = 1/\sigma$ is the specific resistance of the fluid. The author studies the problem of choosing, among the piecewise-continuous functions $\rho(x,y)$ satisfying

$$\rho_{min} \leqslant \rho(x,y) \leqslant \rho_{max} \qquad (4)$$

an optimal control $\rho(x,y)$, maximizing I or minimizing Q. The author studies in

ACCESSION NR: AP4034269

detail the case of small values of the parameter p. He is interested in the variation of the functional I, related to optimization of the conductivity distribution, in comparison to the value of this functional for constant conductivity. The increment of total current I can be computed to within order p under certain conditions. The author considers the limiting case $\rho_{max} = \infty$ ($\sigma_{min} = 0$). Here the parameter p is equal to unity. He compares his results with known cases. "The author is deeply grateful to G. A. Grinberg for his many valuable discussions, and also to T. Yu. Andriyevskaya and N. V. Koroleva for performing the difficult numerical computations." Orig. art. has: 7 figures and 37 formulas.

ASSOCIATION: none

SUBMITTED: 30Dec63 DATE ACQ: 15May64 ENCL: 00

SUB CODE: EM NO REF SOV: 006 OTHER: 000

Card 3/3

S/0040/64/028/002/0258/0267

ACCESSION NR: AP4027585

AUTHOR: Lur'ye, K. A. (Leningrad)

TITLE: Optimal control of conductivity of a fluid moving along a channel in a magnetic field

SOURCE: Prikladnaya matematika i mekhanika, v. 28, no. 2, 1964, 258-267

TOPIC TAGS: magnetic field, optimal control, fluid conductivity, current distribution, electric field, extremal requirement, linear control

ABSTRACT: The author gives an example of an application of the general theory developed by him in a previous paper (Zadacha Mayyera-Bol'tsa dlya kratnykh integralov i optimizatsiya povedeniya sistem s raspredelennymi parametrami. PMM, 1963, t. 27, vyp. 5). He studies the problem of finding, among the piecewise-continuous functions of two independent variables $\sigma(x,y)$ (fluid conductivity) satisfying the inequality $\sigma_{min} \leq \sigma(x,y) \leq \sigma_{max}$, an optimal control $\sigma(x,y)$ to which correspond the distribution of currents and the electric field satisfying known extremal requirements. The solution of the problem turns out to be rather

Card 1/2

ACCESSION NR: AP4027585

simple: this is related to the fact that the control $\sigma(x,y)$ is involved in the initial equations linearly, and, in view of the inequality which restricts the possible values of $\sigma(x,y)$, plays a decisive role in determining optimal control. Orig. art. has: 2 figures and 50 formulas.

ASSOCIATION: none

SUBMITTED: 25Nov63	DATE ACQ: 28Apr64	ENCL: 00
SUB CODE: MM, GE	NO REF SOV: 004	OTHER: 001

Card 2/2

S/040/63/027/002/006/019
D251/D308

AUTHOR: Lur'ye, K. A. (Leningrad)

TITLE: On the Hamilton-Jacobi method in variational problems with partial derivatives

PERIODICAL: Prikladnaya matematika i mekhanika, v. 27, no. 2, 1963, 255-264

TEXT: The author considers variational problems for a single unknown function of two independent variables, observing that there is in principle no difficulty in applying such a generalization to more complicated cases. The functional

$$I = \iint_G L(x,y,z,z_x,z_y)\,dxdy \qquad (1.1)$$

Card 1/3

On the Hamilton-Jacobi ...

is considered and, using a Laplace transform applied to Euler's equations. The canonical system which corresponds to the variational problem is sought. The field of the functional (1.1) is defined following I. M. Gel'fand and S. V. Fomin (Variatsionnoye ischisleniye (Variational calculus), M., Fizmatgiz, 1961). Boundary conditions are established in the form

$$z_y(x, \alpha) = \psi[z] \qquad (2.4)$$

where $\psi[z]$ is some functional. These conditions, added to the functional (1.1), are said to be self-conjugate if there exists a functional $S[z,y]$ such that

$$\frac{\delta M[z, \psi[z]]}{\delta z_y} \equiv \frac{\delta S}{\delta z}\Bigg|_{y=a} \qquad (2.5)$$

Card 2/3

On the Hamilton-Jacobi ... S/040/63/027/002/006/019
D251/D308

Necessary and sufficient conditions are established for self-conjugacy on the line $y = a$, and it is shown that the boundary conditions agree if the functional $S[z,y]$ satisfies the Hamilton-Jacobi equations. The well-known inequality for the determinant of the matrix of local derivatives which characterize the total integral of the usual Hamilton-Jacobi equation is generalized, for the integration of the canonical equation

$$\frac{\partial z}{\partial y} = \frac{\delta N}{\delta q}, \quad \frac{\partial q}{\partial y} = -\frac{\delta N}{\delta z} \qquad (1.9)$$

It is proved that if $S[z,\alpha,y]$ is the total Levi integral of the Hamilton-Jacobi equation and $\beta(x)$ is an arbitrary function, then the functional $z = z[x,y:\alpha,\beta]$ defined by $\delta S/\delta\alpha = \beta$, and the functional $q = \delta S/\delta z$ form the general solution of (1.9). The example of the oscillations of an infinite string is worked in detail.

SUBMITTED: December 27, 1962

Card 3/3

LUR'YE, K.A. (Leningrad)

Theorems of Liouville and Stackel for hyperbolic variational problems. Prikl. mat. i mekh. 27 no.3:573-575 My-Je '63. (MIRA 16:6)

(Calculus of variations)

LUR'YE, K.A.

Propagation of slight perturbations in a gas of finite conductivity in a magnetic field. Zhur. tekh. fiz. 33 no.7:886-889 Jl '63. (MIRA 16:9)

1. Fiziko-tekhnicheskiy institut im. A.F.Ioffe AN SSSR, Leningrad.
(Magnetohydrodynamics)

LUR'YE, K.A. (Leningrad)

"The conductivity control in hydromagnetic canal flow - an optimum control problem for partial differential equations".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - Feb 64.

LUR'YE, L., inzh.; AKBULATOV, Sh., kand.tekhn.nauk

Asbestos-cement elements for housing construction. Zhil.stroi. no.10:28-30 '58. (MIRA 12:6)
(Asbestos cement)

BOGDANOV, B., inzh.; LUR'YE, L., inzh.

Economical designs of combined roofs. Zhil.stroi. no.11:19-20 '58. (MIRA 12:6)
(Roofs)

LUR'YE, Lev Afanas'yevich

DECEASED
c. '63

1964

Metallurgy
Ore dressing
Briquets

LUR'YE, L.A., kand. tekhn. nauk

Expand the research work on peat briquetting and coking. Torf. prom. 40 no.4:30 '63. (MIRA 16:10)

1. Sektsiya briketirovaniya Nauchno-tekhnicheskogo gornogo obshchestva.
(Peat industry--Research)

DEGTYAREV, Aleksey Petrovich, inzh.; LUR'YE, Lev Iosifovich; REYSH, Arvid Karlovich; SVIRSKIY, Viktor Aleksandrovich; TABUNINA, M.A., red. izd-va; RUDAKOVA, N.I., tekhn. red.

[Bulldozer work]Bul'dozernye raboty. Pod red. A.P.Degtiareva. Moskva, Gosstroiizdat, 1962. 212 p. (MIRA 15:12)
(Bulldozers)

Lur'ye, L.A

STAROBINETS, L.G.; LUR'YE, L.A.

Structure of the adsorption loayer at the interface of air concentrated nonaqueous solution (with summary in English). Zhur.fiz.khim.31 no.7:1510-1520 Jl '57. (MIRA 10:12)

1. Belorusskiy gosudarstvennyy universitet im. V.I.Lenina, Minsk
(Adsorption) (Systems (Chemistry))

BOGOMOLOV, V.I., arkhitektor; LUR'YE, L.L., inzh.

Principles of making designs and plans for industrialized housing construction. Stroi.prom. 27 no.3:3-6 Mr '49. (MIRA 13:2)

(Architecture--Designs and plans)

1. LUR'YE, L. L., Eng.

2. USSR (600)

4. Apartment Houses

7. Plans of 4-5 story residential buildings for construction of apartment houses. Biul.stroi.tekh., 9, no. 24, 1952.

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Unclassified.

MURASHEV, V.A., prof., doktor tekhn.nauk; MIRONOV, S.A., prof., doktor tekhn.nauk; ALEKSANDROVSKIY, S.V., kand.tekhn.nauk; TAL', K.E., kand.tekhn.nauk; DMITRIYEV, S.A., kand.tekhn.nauk; MULIN, N.M., kand.tekhn.nauk; SIGALOV, E.Ye., kand.tekhn.nauk; NEMIROVSKIY, Ya.M., kand.tekhn.nauk; TABENKIN, N.L., inzh. [deceased]; KALATUROV, B.A., kand.tekhn.nauk; BRAUDE, Z.I., inzh.; KRYLOV, S.M., kand.tekhn.nauk; FOKIN, K.F., doktor tekhn.nauk; GUSEV, N.M., prof., doktor tekhn.nauk; YAKOVLEV, A.I., inzh.; KORENEV, B.G., prof., doktor tekhn.nauk; DERESHKEVICH, Yu.V., inzh.; MOSKVIN, V.M.; LUR'YE, L.L., inzh.; MAKARICHEV, V.V., kand.tekhn.nauk; SHEVCHENKO, V.A., inzh.; VASIL'YEV, B.F., inzh.; KOSTYUKOVSKIY, M.G., kand.tekhn.nauk; MAGARIK, I.L., inzh.; IL'YASHEVSKIY, Ya.A., inzh.; LARIKOV, A.F., inzh.; STULOV, T.T., inzh.; TRUSOV, L.P., inzh.; LYUDKOVSKIY, I.G., kand.tekhn.nauk; POPOV, A.N., kand.tekhn.nauk; VINOGRADOV, N.M., inzh.; USHAKOV, N.A., kand.tekhn.nauk; SVERDLOV, P.M., inzh.; TER-OVANESOV, G.S., inzh.; GLADKOV, B.N., kand.tekhn.nauk; KOSTOCHKINA, G.V., arkh.; KUREK, N.M.; OSTROVSKIY, M.V., kand.tekhn.nauk; PEREL'SHTEYN, Z.M., inzh.; BUKSHTEYN, D.I., inzh.;

(Continued on next card)

MURASHEV, V.A.---(continued) Card 2.

MIKHAYLOV, V.G., kand.tekhn.nauk; SIGALOV, E.Ye., kand.tekhn.nauk; GVOZDEV, A.A., prof., retsenzent; MIKHAYLOV, V.V., prof., retsenzent; PASTERNAK, P.L., prof., retsenzent; SHUBIN, K.A., inzh., retsenzent; TEMKIN, L.Ye., inzh., nauchnyy red.; KOTIK, B.A., red. izd-va; GORYACHEVA, T.V., red.izd-va; MEDVEDEV, L.Ya., tekhn.red.

[Handbook for designers] Spravochnik proektirovshchika. Pod obshchei red. V.I.Murasheva. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam. Vol.5. [Precast reinforced concrete construction elements] Sbornye zhelezobetonnye konstruktsii. 1959. 603 p. (MIRA 12:12)

1. Akademiya stroitel'stva i arkhitektury SSSR. Nauchno-issledovatel'skiy institut betona i zhelezobetona, Perovo. 2. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Murashev, Gvozdev, Mikhaylov,V.V., Pasternak, Shubin). 3. Chlen-korresp. Akademii stroitel'stva i arkhitektury SSSR (for Mironov, Gusev, Moskvin, Kurek).

(Precast concrete construction).

AMIRASLANOV, D.A.; LUR'YE, L.M.

Wall-rock alterations of lead-zinc deposits occurring in effusive rocks, as revealed by the studies of the Zambarak deposit in the eastern Kara-Mazar Mountains. Trudy Inst.geol. AN Azerb.SSR 22: 102-152 '62. (MIRA 15:11)

(Kara-Mazar Mountains--Lead ores)
(Kara-Mazar Mountains--Zinc ores)
(Kara-Mazar Mountains--Metamorphism (Geology))

LUR'YE, L.M.

Migration of barium and strontium in the process of metasomatosis of enclosing rocks in the Zambarak mining area. Dokl. AN SSSR. 149 no.5:1167-1169 Ap '63. (MIRA 16:5)

1. Institut geologii rudnykh mestorozhdeniy, petrografii, mineralogii i geokhimii AN SSSR. Predstavleno akademikom D.S. Korzhinskim.
(Kara-Mazar Mountains--Barium)(Kara-Mazar Mountains--Strontium)