NAYDLOF, A. L.

Apparatus for the rapid preparation of [gauze] napkins saturated with emulsions. Eksper. khir. i anest. no.2:95-96 '62. (MIRA 15:6)

(BANDAGES AND BANDAGING)
(BURNS AND SCALDS)

1. NAYDO A.

2. USSR (600)

4. Tractors

7. Demountable preventive maintenance garage for KT-12 tractors. Les.prom 13 no.2, 1953.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

SURKOV, S. K. Eng.; VASIL'EV, P. A. Eng., LIVKIN, B. YU. Eng., MAYZEL', V. A. Eng., KULAKOV, A. A. Eng., SOKOLOV, M. M. Docent, FEDOTOVSKIY, P. G. Prof.

Electric Power Distribution

Electric power supply for industrial enterprises. Elektrichestvo No. 2, 1953.

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

AUTHOR: Naydis, V.A.

TITLE: Rotational Speed and Rate of Feed Indicators for Machine Tools (Pribory-ukazateli skorostey vrashcheniya i podach stankov.)

PERIODICAL: Stanki I Instrument, 1957, No. 1. pp. 34-35 (U.S.S.R.).

ABSTRACT: The article describes electromagnetic volt-meter type of indicators, with variable magnetic gaps, which can be custom built to any scale. The degree of accuracy is stated in a table. The article includes 2 Photographs and 1 table.

ASSOCIATION:

PRESENTED BY:

SUBMITTED:

AVAILABLE: Library of Congress

NAYDIS, V.A., inzhener.

The use of amplidynes and transistor amplifiers for industrial drives. Elektrichestvo no.3:5-9 Mr '57. (MLRA 10:4)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov.

(Electric driving)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

591

UTHORS: Kudinov, B.A., Naydis, V.A., Naletov, S.P., and Khludov, S.V.

ITLE: Selection of the Type of Drive for Feed Mechanisms in Heavy Vertical Lathes (Vybor Tipa Privoda Mekhanizmov Podachi Tyazhelykh Karusel'nykh Stankov).

ERIODICAL: "Stanki i Instrument" (Machine Tools and Cutting Tools, No.3, 1957, pp.9-13. (U.S.S.R.)

BSTRACT: A discussion of the advantages and disadvantages of various layouts in a wide range of heavy vertical lathes is accompanied by tables giving speed and feed limits and cutting forces for a range of diameters between 3200 mm and 20 000 mm and the corresponding range of component types between 2000 mm and 6300 mm. The feed and setting-up mechanisms are sub-divided into those with purely electrical and those with electromechanical control, controlled by either a two-speed gear-box or a two-motor drive. Another table for the above range of component sizes gives the installed h.p. for a number of variants belonging to these two classes also illustrated by kinematic diagrams. It is concluded that except for the largest machines, the most appropriate arrangement is the feed drive by an individual d.c. motor with two-speed gear-box control and a separate motor for fast setting-up motions. This arrangement yields the simplest and cheapest complete installation and is most readily standardised for the whole range of vertical lathes.

There are 6 illustrations and 4 tables.

ard 1/1

AUTHOR: NAYDIS, V.A., ROZINOV, A.G., ROZMAN, Ya.B. PA - 3611

TITLE: Electric Drive of Machine Tool Feed with Magnetic- and Semiconductor Amplifiers. (Elektroprivody podachi stankov s magnitnymi i poluprovodnikovymi usilitelyami, Russian)

PERIODICAL: Stanki i Instrument, 1957, Vol 28, Nr 6, pp 7 - 10 (U.S.S.R.)

ABSTRACT: In the drives of machine tool feeds electric direct current motors are at present frequently used the revolutions of which can be reduced to 1 : 50 and more of the normal number by a change of amperage by means of a transformer. However, a rotating transformer is very expensive, takes up much room, and causes a considerable amount of notice. These disadvantages are particularly marked in the case of machines of medium size where the main drive is effected by means of alternating current and the transformer is the only one used. A simple and reliable electric drive is obtained by means of a direct current motor with a magnetic amplifier, a type which is being used with great success in the U.S.S.R. and in other countries. It costs about half as much, it is more simple and has no rotating parts. The development of the production of semiconductor triodes and the increase of their efficiency up to 10 - 30 W make it possible to use them with success in connection with magnetic amplifiers within the system of controllable electric devices. The testing of such an electric drive on the test bench is de-

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APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

PA - 3611

Electric Drive of Machine Tool Feed with Magnetic- and Semiconductor Amplifiers.

scribed (with illustrations). In the conclusion, the possibility of making wide use of this new drive in the electric circuits of the electric feed of metalworking machines is discussed.

ASSOCIATION: Not given
PRESENTED BY:
SUBMITTED:
AVAILABLE: Library of Congress

Card 2/2

1/26

AUTHOR KUDINOV B.A., NAYDIS V.A., KALETOV S.P., ZHLUDOV S.V.

TITLE The Selection of the Main Drive Type of Heavy Vertical Lathes. (Vybor tipa privoda glavnogo dvizheniya tyazhelykh karuselnykh stankov -Russian)

PERIODICAL Stanki i Instrument, 1957, Vol 28, Nr 7, pp 1 - 3, (U.S.S.R.)

ABSTRACT The development of the heavy metal working benches demands a continuous increase of the possibilities of regulating the main drive velocities because at steady minimum cutting velocity the highest attainable values increase steadily thanks to the perfection of the hard metal tools. For modern vertical lathes the controllability of revolutions amounts from 1 : 80 to 1:100 the main drive may be by means of an asynchronic electromotor via a many-stepped switch box, or well as by means of a cotrollable direct current motor with a 2-or 4 stepped switch-box. The direct current drive facilitates the control of revolutions and thus renders it possible to attain the best cutting conditons, which is the case especially when applying a special current transformer. The mechanical part of the drive compared to the asynchronic motor, is simplified, (2 to 4 steps instead of 18 to 24 of the drive box) but the electric part is somewhat more complicated, which causes a decrease of operational safety, as well as an increase of initial costs; For the present heavy home models of vertical- and turning lathes, direct current motors with a shunt control of 4:1 as well as 3 mechanical switching steps are used, which corresponds

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121-7 1 26

The Selection of the Main Drive Type of Heavy Vertical Lathes.

to a range domain of the faceplate revolving of from 1:64 to 1:85; individual motor converters are built in by 95% of the consumers. Table 1 and 3 illustrations show and explain the method of the most advantageous selection of the drive.

ASSOCIATION Not Given.
PRESENTED BY
SUBMITTED
AVAILABLE Library of Congress.
Card 2/2

KUDINOV, B.A.; NAYDIS, V.A.; NALETOV, S.P.

Operating electric drives in heavy-duty vertical boring and turning lathes. Stan.i instr. 28 no.9:10-12 S '57. (MIRA 10:10)
(Machine tools--Electric driving) (Electronic control)

MARKIN, P.V., inzh.; NAYDIS, V.A., inzh.

Controlled electric drive of metal-cutting machines in West Germany. Elektrichestvo no.7:78-81 Jl '58. (MIRA 11:8)
(Germany, West--Machine tools--Electric driving)

NAYPIS, V.A.

25(1) PHASE I BOOK EXPLOITATION SOV/2383

Akademiya nauk SSSR. Komissiya po tekhnologii mashinostroyeniya

Avtomatizatsiya mashinostroitel'nykh protsessov. t. II: Privod i upravleniye rabochimi mashinami (Automation of Machine-building Processes. Vol. 2: Drives and Control Systems for Process Machinery) Moscow, Izd-vo AN SSSR, 1959. 370 p. Errata slip inserted. 5,000 copies printed.

Ed.: V.I. Dikushin, Academician; Ed. of Publishing House: D.R. Ioffe; Tech. Ed.: I.P. Kuz'min.

PURPOSE: This book is intended for engineers dealing with automation of various machine-building processes.

COVERAGE: This is the second volume of transactions of the second Conference on Overall Mechanization and Automation of Manufacturing Processes held September 25-29, 1956. The present volume consists of three parts, the first dealing with automation of engineering measuring methods. The subjects discussed include automatic control of dimensions of machined parts, inspection methods for automatic production lines, in-process inspection devices, application of electronics in automating linear measuring processes, and machines for automatic inspection of bearing races. The second part deals with automatic drives and control systems for process machinery, including application of digital computers in the control of metal-cutting machine tools, reliability of relay systems, application of gas-tube frequency converters in the control of induction motor speeds, magnetic amplifiers and their use in automatic systems, hydraulic drives, and ultrasonic vibrators. Part three deals with mechanisms of automatic machines and automatic production lines. The subjects discussed include linkage, indexing, and Geneva-wheel-type mechanisms, friction drives, automatic loading devices, diaphragm-type pneumatic drives, various auxiliary devices for automatic production lines, and methods of design and accuracy of cams. No personalities are mentioned. There are no references.

Card 3/7

NAYDIS, V.A.; ROZMAN, Ya.B.

Conference on magnetic amplifiers. Elektrichestvo no.2:86-87 F '59. (MIRA 12:4)
(Magnetic amplifiers--Congresses)

8 (5)

AUTHOR: Naydis, V. A., Engineer SOV/105-59-7-28/30

TITLE: Consultation on the Electrical Equipment of Cutting Machine Tools (Soveshchaniye po elektrooborudovaniyu metallorezhushchikh stankov)

PERIODICAL: Elektrichestvo, 1959, Nr 7, pp 92-93 (USSR)

ABSTRACT: In March 1959 the All-Union Scientific-technical Conference on the electrical equipment of cutting machine tools took place at Moscow. It was attended by more than 180 representatives of 96 machinebuilding plants, construction offices, scientific research institutes, and colleges from more than 30 cities of the USSR. 34 lectures were delivered. Chief Construction Engineer of the ENIMS (Experimental Scientific Research Institute of Metal-cutting Lathes), Academician V. I. Dikushin spoke about the problems in the field of controllable electric drive and the automatic control of machine tools. Chief expert on the building of machine tools of the Gosplan SSSR (State Planning Committee of the Council of Ministers of the USSR) M. Ye. Mardanyan dwelt upon the main directions in the development of cutting machine tools as well as about the demands made with respect to their

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electrical equipment. - P. V. Markin spoke about controllable direct current drives. - A. S. Sandler (MEI) (Moscow Institute of Power Engineering) gave a natural characterization of scientific research work in the field of frequency regulation of asynchronous motors. - V. A. Ratmirov dwelt upon the work of ENIMS in the field of the electric drive of machine tools with stepped motors. - The representatives of various plants P. D. Petrenko, V. P. Men'shikh, L. V. Dranitskiy, S. T. Oleynikov, Ya. S. Brovman and I. L. Shapiro spoke about the main fields of application of electric equipment of cutting machine tools. - G. A. Monakhov and I. Ye. Rubashkin spoke about problems of electric copying. - Director of ENIMS Doctor of Technical Sciences Professor A. P. Vladziyevskiy reported on the prospects of building machine tools with electronic control by a centralized production of building units and complete control systems. - V. G. Zusman suggested the classification of the systems of programmed control of machine tools and the introduction of a uniform terminology for these systems. - Yu. N. Belikov reported about work carried out for the programming of complicated curved contours. - V. M. Kiselev

Consultation on the Electrical Equipment of Cutting Machine Tools SOV/105-59-7-28/30

spoke about the work carried out in the field of machine tools with phase control. - A. N. Kotov spoke about the experience gathered in working out machine tools with digit control. - A. M. Razygrayev reported about the digit system of a program control with adjustment according to the given coordinates of the boring mill 262PR. - I. A. Vul'fson gave a survey of the achievements made in foreign countries in the field of the production of machine tools with digit control. - E. I. Minsker spoke about general problems of the electrical equipment of automatic lines. - P. I. Strel'nikov reported about work in the field of the electrical equipment of automatic lines with units of machine tools for the working of casings. - Yu. N. Ivenskiy reported on the introduction of a low-voltage current apparatus in automatic machine-tool lines and about contactless electronic elements. - O. N. Tatur gave the nomenclature and the parameters for the centralized production of electromagnetic coupling devices for machine-tool construction as well as for the construction of multiple-disk clutches developed in the ENIMS; V. A. Naydis and E. B. Rogachev formulated the demands made on the electric industry with respect to the necessary

Card 3/4

Consultation on the Electrical Equipment of Cutting Machine Tools SOV/105-59-7-28/30

nomenclature and technical characteristics of electric machines and apparatus for cutting machine-tools. - Chief expert of the GOSPLAN SSSR C. S. Tulin spoke about the measures to be taken for the increase of the production of electric machines and apparatus. - I. I. Charakhchyan, Ya. S. Gurin, and R. S. Kuznetsov gave a report on the new series of alternating- and direct current motors and the new types of low-voltage current apparatus.

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8(3)

AUTHOR: Naydis, V. A., Engineer SOV/105-59-10-5/25

TITLE: Electric Drive for the Feed of Heavy Machine Tools

PERIODICAL: Elektrichestvo, 1959, Nr 10, pp 27-33 (USSR)

ABSTRACT: In connection with the manufacture of large power triodes of the P4 type at the ENIMS (Experimental Scientific Research Institute of Metal-cutting Machines), a control system with electric machine amplifiers (with low-resistance control winding) was developed in 1958. The system guarantees a high amplification coefficient and a multiple feed voltage reserve with respect to the rated voltage of the control circuit of the electric machine amplifier. Figure 1 shows and describes the circuit of an electric reversing-drive consisting of a rotary amplifier and a motor with a semi-conductor amplifier of the UPP6 type. The control system is schematized in figure 2. Amplification $k_V k_H$ amounts here to 8,000 - 16,000. k_V denotes the amplification coefficient of the electric machine amplifier, k_H the amplification coefficient of the semiconductor amplifier. The control system electric machine amplifier - motor with speed feedback via an intermediate

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Electric Drive for the Feed of Heavy Machine Tools SOV/105-59-10-5/25

semiconductor amplifier and a parallel correction circuit guarantees the required stability of the number of revolutions and satisfactory course of the transients as well as sufficient operating stability for wide ranges of motor speed regulation. The author describes a synthesis of the control system which is applied by the circuit diagram shown in figure 1. A corresponding calculation follows. This method ensures a degree of accuracy that suffices all practical purposes. An example is given in an appendix. Experiments were made at the "Tyazhstankogidropress" Plant. There are 8 figures and 4 Soviet references.

ASSOCIATION: ENIMS (Experimental Scientific Research Institute of Metal-cutting Machines)

SUBMITTED: June 4, 1959

Card 2/2

NAYDIS, V. A., Cand Tech Sci -- (diss) "Automatized driving gear with electrical machine amplifier for feeding mechanisms of heavy machine tools of the lathe type." Moscow, 1960. 16 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Machine-Tool Instrument Inst im I. V.Stalin); 150 copies; price not given; (KL, 25-60, 133)

8 (3) S/105/60/000/02/020/024
AUTHOR: Naydis, V. A., Engineer B007/B008

TITLE: Conference on the Application of Power Semiconductor Rectifiers in Industrial Works and in Transportation

PERIODICAL: Elektrichestvo, 1960, Nr 2, pp 89 - 90 (USSR)

ABSTRACT: A scientific-technical Conference on the application of power semiconductor rectifiers in industrial works and transportation was held in Moscow in November 1959. It was organized by the Moskovskiy dom nauchno-tekhnicheskoy propagandy im. F. E. Dzerzhinskogo (Moscow House of Scientific-technical Propaganda imeni F. E. Dzerzhinskiy), the head offices of the Vystavka dostizheniy narodnogo khozyaystva SSSR (Exposition of Achievements of the National Economy of the USSR) and by the Nauchno-tekhnicheskoye obshchestvo energetikov (Scientific-technical Society of Power Engineers). 300 representatives of scientific institutions, design offices, and works were present at the Conference. I. I. Dobromyslov, Chairman of the Gosudarstvennyy komitet po avtomatizatsii i mashinostroyeniyu (State Committee for Automation and Machine Building) opened the conference and pointed out the importance of semiconductor recti-

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Conference on the Application of Power Semiconductor S/105/60/000/02/020/024
Rectifiers in Industrial Works and in Transportation B007/B008

fiers for national economy. B. M. Vul, Corresponding Member of the AS USSR, examined in his lecture the problems arising from the computation of a germanium large-sized rectifier cell. Engineer V. P. Kamenskaya reported on the methods for investigation and determination of individual parameters of large-sized semiconductor appliances. A. A. Sakovich, Candidate of Technical Sciences, investigated in his lecture the rational fields for the application of various types of rectifiers. A. A. Tayts, Candidate of Technical Sciences, reported on the development of power semiconductor rectifiers and entire installations abroad. S. B. Yuditskiy, Candidate of Technical Sciences, examined the work of the VEI im. V. I. Lenina (All-Union Electrotechnical Institute imeni V. I. Lenin) in connection with the production of germanium- and silicon power rectifiers and entire rectifier installations for the industry. Engineer I. A. Tepman reported on the production of germanium- and silicon rectifiers and entire rectifier installations at the zavod Mordovskogo Sovnarkhoza (Works of the Mordovskiy Sovnarkhoz). Engineer A. I. Gribov reported on the production of silicon rectifiers at the zavod Moskovskogo oblastnogo sovnarkhoza (Works of the

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Conference on the Application of Power Semiconductor Rectifiers in Industrial Works and in Transportation S/105/60/000/02/020/024 B007/B008

Moscow District Sovnarkhoz). Engineer N. P. Bulavin investigated in his lecture the technical-economical characteristics and rational fields of application of selenium rectifiers. Engineer S. M. Rubinovich reported on the rational fields of application for semiconductor rectifiers in nonferrous metallurgical engineering and laid down the basic requirements for the rectifier installations. Engineer A. A. Karvovskiy reported on the application of semiconductor rectifiers in galvanizing workshops and formulated the requirements for rectifier installations for such workshops. Engineer N. Kh. Sitkin reported on the development of electric locomotives with semiconductor rectifiers. Engineer P. V. Krotov reported on the project of a narrow-gage electric locomotive with silicon rectifiers, and an output of 150 kw and a static adhesive weight of 16 tons. A. I. Moskvitin, Doctor of Technical Sciences, reported on the application of semiconductor rectifiers for the excitation of synchronous generators and synchronous motors. L. M. Tverdin, Candidate of Technical Sciences, reported on the application of semiconductor triodes for automatic electric drives with mercury rectifiers which are fed by d.c. motors, as well as for switching devices

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Conference on the Application of Power Semiconductor Rectifiers in Industrial Works and in Transportation S/105/60/000/02/020/024 B007/B008

for the frequency control of induction motors. Engineer V. A. Naydis reported on the application of power semiconductor rectifiers for the electric drive of machine tools and machines. Engineer I. A. Salynskiy referred to the problems of development and investigation of installations with selenium rectifiers for welding plants. Engineer M. M. Smirnov reported in his lecture on the experiences from the manufacture and operation of rectifiers for galvanizing- and arc welding installations. Engineer B. V. Strogov reported on the experience from the manufacture and operation of power selenium rectifiers in installations for galvanic and anode layers.

Card 4/4

NAYDIS, V.A., inzh.

Meeting on the science and technology of d.c. electric machines. Elektrichestvo no.4:91-93 Ap '60. (MIRA 14:4)
(Electric machinery—Congresses)

NAYDIS, V.A., inzh.

Silicon control valves and their use in electric drive circuits. Elektrichestvo no.6:93-95 Je '60. (MIRA 13:7)

(Electric driving)
(Electric current rectifiers)

AYZENSHTADT, L.A.; PEN'KOV, P.M.; GLADKOV, B.A.; LIKHT, L.O.; KRIMMER, T.Ye.; KASHEPAV, M.Ya., kand. tekhn. nauk; MERPERT, M.P., kand. tekhn. nauk; KOPERBAKH, B.L.; CHERNIKOV, S.S., kand. tekhn.nauk; BELOV, V.S.; ZHURIN, B.F.; MONAKHOV, G.A., kand.tekhn.nauk; MOROZOV, I.I.; MUSHTAYEV, A.F.; OGNEV, N.N.; PALEY, M.B., kand. tekhn. nauk; FURMAN, D.B.; LIVSHITS, A.L., kand.tekhn.nauk; MFCHETNER, B.Kh.;SOSENKO,A.B;AVDULOV, A.N.; LEVIN, A.A., kand.tekhn. nauk; YAKOBSON, M.O., doktor tekhn.nauk; MAYOROVA, E.A., kand.tekhn.nauk; MOROZOVA, Ye.M.; ZUSMAN, V.G., kand.tekhn. nauk; NAYDIS, V.A., kand.tekhn.nauk; VLADZIYEVSKIY, A.P., prof., doktor tekhn. nauk, red.; BELOGUR-YASNOVSKAYA, R.I., red.; CHIGAREVA, E.I., red.; ASVAL'DOV, M.Ya., red.; KOGAN, F.L., tekhn. red.

[Machine-tool industry in capitalist countries] Stankostroenie v kapitalisticheskikh stranakh. Pod red. i s predisl. A.P.Vladzievskogo. Moskva, 1962. 822 p. (MIRA 15:7)

1. Moscow. TSentral'nyy institut nauchno-tekhnicheskoy informatsii mashinostroyeniya. 2. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov (for Vladziyevskiy, Belogur-Yasnovskaya, Chigareva, Asval'dov, Kogan).

(Machine-tool industry)

NAYDIS, V.A., kand.tekhn.nauk; LEBEDEV, A.M., inzh.; NOVIKOV, V.V., inzh.

Regulated d.c. drives with transistor rectifiers. Elektrichestvo no.11:83-87 N '62. (MIRA 15:11)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov.
(Electric motors, Direct current)

BROVMAN, Yakov Semenovich; KAGAN, Valeriy Gennadiyevich; KOCHUBIYEVSKIY, Feliks Davydovich; NAYDIS, Veniamin Abramovich; CHILIKIN, M.G., red.; LEBEDEV, A.M., red.

[Direct current systems with amplidyne amplifiers] Sistemy postoiannogo toka s elektromashinnymi usiliteliami. Moskva, Energiia, 1964. 79 p. (Biblioteka po avtomatike, no.119; elektroprivody s poluprovodnikovym upravleniem)
(MIRA 18:1)

MEYSTEL', A.M.; NAYDIS, V.A.

Selecting a dynamic braking system of short-circuited asynchronous motors for machine tools. Stan. i instr. 36 no.9:5-9 S '65.
(MIRA 18:10)

KAYD'ON, F.

Year's work of the district collective farm building organization. Sil'.bud. 8 no.2:5-6 F '58. (MIRA 13:7)

1. Predsedatel' soveta Reshetilovskoy rayonnoy kolkhoznoy stroitel'noy organizatsii Poltavskoy oblasti.
(Reshetilovka District--Farm buildings)

NAYD'ON, F.

Let's strengthen our supply bases. Sil'.bud. 7 no.7:20
Jl '59. (MIRA 12:11)

1. Predsedatel' soveta Reshetilovskoy rayonnoy kolkhoznoy stroitel'noy organizatsii.
(Poltava Province--Construction industry)

NAYD'ON, F.

Efficient help given to collective farms in construction. Sil'. bud. 9 no.6:7-8 Je '59. (MIRA 12:9)

1. Golova radi Reshetilivs'koi Mizhkolgospnoi budivel'noi organizatsii Poltavs'koi oblasti.
(Reshetilovka District--Building)

NAYD'ON, F.

Let's not allow any shortcomings in the expansion of interfarm cooperation. Sil'. bud. 11 no.1:3-4 Ja '61. (MIRA 14:3)

1. Predsedatel' soveta Reshetilovskoy mezhkolkhoznoy stroitel'noy organizatsii Poltavskoy oblasti.
(Ukraine—Collective farms—Interfarm cooperation) (Farm buildings)

NAYDONVA, .P.

Stimulation of the contractile activity of the uterus with spherophysine. Akush. i gin. 40 no.5:46-51 S-O '64. (MIRA 18:5)

1. Kafedra akusherstva i ginekologii (zav. - dotsent K.K.Komeshko) Smolenskogo meditsinskogo instituta, nauchnyy konsul'tant - prof. I. Leningradskogo meditsinskogo instituta I.I.Yakovlev.

ACC NR: AP7011361 (N) SOURCE CODE: UR/0393/66/000/004/0257/0260

AUTHOR: Vil'yams, V. V. (Deceased); Naydovich, L. P.; Rosmotskiy, B. K.; Gubanov, I. A.

ORG: All-Union Scientific Research Institute of Medicinal and Aromatic Plants (Vsesoyuznyy n.-i. institut lekarstvennykh i aromaticheskikh rasteniy)

TITLE: Andrachne rotundifolia alkaloids

SOURCE: Khimiya prirodnykh soyedineniy, no. 4, 1966, 257-260

TOPIC TAGS: alkaloid, plant chemistry

SUB CODE: 07,06

ABSTRACT: The alkaloid content in Andrachne rotundifolia C. A. Mey amounts to 0.2-0.3 percent in underground and 0.06-0.08 percent in above-ground parts of this plant and consist of 5 or 6 nonphenolic bases. Three individual substances were separated: the alkaloid Andrachnine ($C_{11}H_{17}NO_2$); a base perchlorate with a melting point of 139-140°, and a base with a melting point of 135-136°. The authors thank M. Ye. Perel'son, who carried out the spectrum experiments. Orig. art. has: 2 figures. [JPRS: 40,351]

Card 1/1

0921 1248

ULASENKO, Ya.; NAYDOV-ZHELEZOV, Ch.

Utilization of working time and maintenance of production. Sots. trud no.8:30-37 Ag '57. (MIRA 10:9)

(Time study)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

ULASENKO, Ya.; NAYDOV-ZHELEZOV, Ch.

Standardization of the number of auxiliary personnel in the workshops of the machinery industry. Sots.trud. no.6:77-88 Je '58. (MIRA 11:6)

(Machinery industry)

PHASE I BOOK EXPLOITATION SOV/3857

Moscow. Dom nauchno-tekhnicheskoy propagandy imeni F. E. Dzerzhinskogo

Vysokoproizvoditel'naya tekhnologicheskaya osnastka (High-Productivity Auxiliary Processing Equipment) Moscow, Mashgiz, 1960. 174 p. 8,000 copies printed.

Sponsoring Agency: Obshchestvo po rasprostraneniyu politicheskikh i nauchnykh znaniy RSFSR.

Ed. (title page): V. V. Kuz'min; Ed. (inside book): S. L. Martens; Tech. Ed.: L. P. Gordeyeva; Managing Ed. for Literature on Metal-working and Machine-Tool Construction (Mashgiz): V. V. Rzhavinskiy, Engineer.

PURPOSE: This collection of articles is intended for technical personnel engaged in the development of auxiliary equipment for metal processing.

COVERAGE: This collection contains articles dealing with modern machine-tool auxiliary equipment, methods of manufacture, and data on the introduction of such equipment into production. The engineering and

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economic aspects of the use of standardized auxiliary equipment are also discussed. No personalities are mentioned. References follow each article.

TABLE OF CONTENTS:

L 38238-66 EWT(1) IJP(c) AT/JM

ACC NR: AP6023878 SOURCE CODE: UR/0109/66/011/007/1322/1325

AUTHOR: Naydov-Zhelezov, K. G.; Platonova, A. L.

ORG: none

TITLE: Linear spiratron with M-type gun

SOURCE: Radiotekhnika i elektronika, v. 11, no. 7, 1966, 1322-1325

TOPIC TAGS: traveling wave tube, spiratron, electron gun

ABSTRACT: A possibility has been experimentally studied of combining the linear spiratron with an M-type electron gun described by G. S. Kino et al. (IRE Trans., ED-9, 1962, 1). In the model (see Fig. 1) of a special combination tube: 1 - solenoid, 2 - gun, 3 - magnetic shield, 4 - rod; 5 - helix, 6 - electron beam, 7 - glass envelope,

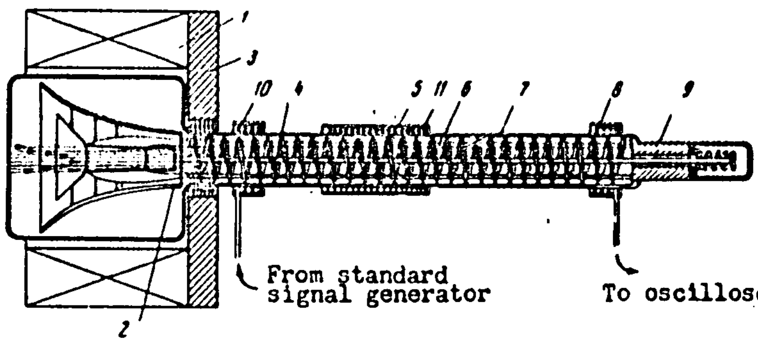

Fig. 1.

Card 1/2 UDC: 621.385.632.12

L 38238-66

ACC NR: AP6023878

8 - output matcher, 9 - collector, 10 - input matcher, 11 - absorber. In the tube axisymmetrical structure, there are radial electric-field and magnetic-field components. The z-axis variation of the magnetic flux that interacts with the electron beam results in twisting the beam, thus materializing the centrifugal-electrostatic focusing principle of the tube. Several laboratory models of the above tube were tested at 209—560 Mc, with delay-structure lengths from 22 to 30 cm; gain, about 25 db, with beam current as small as 1.5—4 ma. "The authors wish to thank Z. S. Chernov for the problem statement and his help in carrying out the experiments." Orig. art. has: 2 figures and 2 formulas. [03]

SUB CODE: 09 / SUBM DATE: 11Mar66 / ORIG REF: 005 / OTH REF: 003 / ATD PRESS: 5046

Card 2/2

RAZUMOVICH, Mikhail Borisovich; NAYDOVICH, A.N., red.; KARPINOVICH, I.Ya., tekhn. red.

[Entertaining physiology] Zanimatel'naia fiziologiia. Minsk, Gos.uchebno-pedagog.izd-vo M-va prosv. BSSR, 1962. 171 p. (MIRA 15:10)

(PHYSIOLOGY)

NAYDOVICH, I.; KOVARSKIY, M.

Increase the quality requirements for signal contacts. Prom.energ. 14 no.2:51-52 F '59. (MIRA 12:3)

1. Glavnyy energetik Volokhovskogo alyuminiyevogo zavoda (for Naydovich).
2. Nachal'nik tsekha setey, i podstantsii volokhovskogo alyuminiyevogo zavoda (for Kovarskiy).

(Electric contactors)

NAYDOVSKIY, V., inzh., sportsmen 1-go razryada, rekordsmen mira

A record flight. Kryl. rod. 14 no.8:44-45 Ag '63. (MIRA 16:8)

(Helicopters—Models)

NAYDOVSKIY, V., inzh., master sporta

How to increase the thrust. Kryl. rod. 16 no.7:28 Jl '65.
(MIRA 18:8)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00113622O(

NAYDUS G.G.

AUTHORS: Chernyak, M. G., and Naydus, G. G. 57-10-10/33

TITLE: An Investigation of the Wettability of Some Materials by Melted Glass (Issledovaniye smachivayemosti rasplavlennym steklom nekotorykh materialov).

PERIODICAL: Zhurnal Tekhn. Fiz., 1957, Vol. 27, Nr 10, pp. 2268-2272 (USSR).

ABSTRACT: The results of the investigation on the wettability of drawn platinum and of its alloys and a number of other materials by melted glass at temperatures, which correspond to the viscosity values at which the formation of glass fibre takes place,are detailed here. With respect to the question, wether it is possible to replace precious metals partly or entirely by quartz or ceramic materials, these have been studied as well. A more delicate method for the determination of the wettability on the aforementioned conditions is described. On the basis of the investigations the metals and alloys under consideration can be arrayed according to the increase in wettability in the following order. 93 % Pt + 7 % Rh < 100 % Pt < 75 % Pt + 25 % Pd < 25 % Pt + 75 % Pd < 100 % Pd. A comparison of these data with those from the All-Union Scientific Research Institute for Glass

Card 1/2

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

An Investigation of the Wettability of Some Materials by Melted Glass. 57-10-10/33

Fibres shows a good consistency of the results on wettability as well as on the immediate connection between the degree of wettability and the degree of oxydation.
There are 3 tables, 3 figures and 10 Slavic references.

ASSOCIATION: All-Union Scientific Research Institute for Glass Fibres, Moscow (Vsesoyuznyy nauchno-issledovatel'skiy institut steklyannogo volokna, Moskva).

SUBMITTED: February 6, 1956.

AVAILABLE: Library of Congress.

Card 2/2

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

15(2)

AUTHORS: Chernyak, M. G., Blokh, K. I., Naydus, G. G.

SOV/72-58-12-4/23

TITLE: Calculation Method of the Diameter of a Continuous Glass Fiber (Metod rascheta diametra nepreryvnogo steklyannogo volokna)

PERIODICAL: Steklo i keramika, 1958, Nr 12, pp 13 - 17 (USSR)

ABSTRACT: The dimension method, first adopted by Professor L.S.Eygenson in connection with the conditions of vitrification, was used for the solution of this problem (Refs 1 and 2). This method is based on results obtained from experimental investigations. Formula (1) generally represents the dependence of the fiber diameter on the parameters determined in the experimental way. By a number of mathematical transformations, the authors obtain formulae (2) and (3). The authors further describe the experiments, contained in formulae (1) and (2), which were carried out in order to obtain the required ex-

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Calculation Method of the Diameter of a Continuous Glass Fiber SOV/72-58-12-4/23

perimental values. By a further transformation of the formulae, the authors obtain formulae (4) and (5), by which the values of the coefficient K_2 as well as the diameter of the fiber can be calculated. Tables 1 to 6 show the values of the drawing velocity (w), the fiber diameters obtained both experimentally (d_{exp}) and by calculation (d_{cal}), using various annular drawing dies and the same glass mass temperature of 1240°. The average deviations of the experimental from the calculated values amount to 6.7% and 3.5%. There are 6 tables and 2 Soviet references.

Card 2/2

NAYDUS, G. G.

Cand Tech Sci - (diss) "Study of the effect of several technological factors on the factors of forming fine continuous glass fiber." Moscow, 1961. 18 pp; (Ministry of Higher and Secondary Specialist Education RSFSR, Moscow Order of Lenin Chemical Technology Inst imeni D. I. Mendeleyev); 200 copies; price not given; (KL, 7-61 sup, 242)

CHERNYAK, M.G.; ASLANOVA, M.S.; VOL'SKAYA, S.Z.; KUTUKOV, S.S.; SIMAKOV, D.P.; NAYDUS, G.G.; BOVKUNENKO, A.N.; KOVALEV, N.N.; SHKOL'NIKOV, Ya.A.; ZHIVOV, L.G.; KOVALEV, N.P.; KOZHUKHOVA, N.V.; KOROLEVA, A.Ye.; VINOGRADOVA, A.M.; OSIPOVA, O.M.; BADALOVA, E.I.; BRONSHTEYN, Z.I.; L'VOV, B.S.; KRYUCHKOV, N.N.; BLOKH, K.I.; MASHINSKAYA, N.I., red.

[Continuous filament glass fibers; technology fundamentals and their properties] Nepreryvnoe stekliannoe volokno; osnovy tekhnologii i svoistva. Moskva, Khimiia, 1965. 319 p. (MIRA 18:8)

NAYDYSH, A. M.

Theory and Methods of Evaluation of Measurements

Dissertation: "Problems of Baring and Preparing the Flat Coal Seams of the Donbas." Dr Tech Sci, Inst of Mining, Acad Sci USSR, Oct-Dec 1953. (Brief summary given.) Vestnik Akademii Nauk Moscow, Mar 54)

SO: SUM 213, 20 Sep 1954

NAYDYSH, A.M.; IGNATENKO, K.P., redaktor; ALADOVA, Ye.I., tekhnicheskiy redaktor

[Efficient methods of opening and preparing sloping mine fields in the Donets Basin] Ratsional'nye skhemy vskrytiia i podgotovki shakhtnykh polei Donetskogo basseina na pologom padenii. Moskva, Ugletekhizdat, 1954. 142 p. (MIRA 8:4)

(Donets Basin--Coal mines and mining)

NAYDYSH, A. M.: Doc Tech Sci (diss) -- "Problems of developing mines in the Donets basin on sloping ground". Moscow, 1957. 39 pp (Min Higher Educ USSR, Moscow Mining Inst im I. V. Stalin), 100 copies (KL, No 5, 1959, 148)

NAYDYSH, A. M. Doc Tech Sci -- "Problems of ~~[illegible]~~ opening of mine fields and reconstruction of mining ~~in the~~ of Donbass ~~pits during~~ mines in the working of sloping ~~layers~~ veins." Dnepropetrovsk, 1960 (Min of Higher and Secondary Specialized Education UkSSR. Dnepropetrovsk Metallurgical Inst). (KL, 1-61, 190)

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R00113622O(

NAYDYSH, A.M., dotsent

Basic problems in reorganizing Donets Basin coal mines. Izv. vys. ucheb. zav. gor. zhur. no.8:3-6 '60. (MIRA 13:9)

1. Donetskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut im. N.S. Khrushcheva.
(Donets Basin--Coal mines and mining)

NAYDYSH, A.M., kand.tekhn.nauk; BRATISHKO, A.S., gornyy inzh.

Determining the annual coal outpur of the surveyed sections in the southwest areas of the Donets Basin. Ugol' Ukr. 5 no.7:3-6 Jl '61. (MIRA 15:1)

1. Donetskiy politekhnicheskiy institut.
(Donets Basin--Mine valuation)

NAYDYSH, A.M.; DUDKO, I.S.

Use of the L-52m shuttle cutter-loader in Mine 13-bis of the Sovietskugol' Trust. Ugol' Ukr. 5 no.12:31-33 D '61. (MIRA 14:12)

1. Donetskiy politekhnicheskiy institut (for Naydysh). 2. Trest Sovetskugol' (for Dudko).

(Donets Basin—Coal mining machinery)

NAYDYSH, Aleksandr Mikhaylovich, prof., doktor tekhn. nauk; BARANOV, A.I., otv. red.; OKHRIMENKO, V.A., red. izd-va; MESHCHANKINA, I.S., tekhn. red.; OVSEYENKO, V.G., tekhn. red.

[Opening up and developing coal seams] Vskrytie i podgotovka ugol'nykh plastov. Moskva, Gosgortekhizdat, 1963. 166 p. (MIRA 16:7)

(Coal mines and mining)

LEYBOV, R.M., prof., doktor tekhn. nauk, red.; OGLOBLIN, D.N., prof., doktor tekhn. nauk, red.; NAYDYSH, A.M., prof., red.; KSENOFONTOVA, A.I., prof., red.; MEDVEDEV, B.I., dots., red.; TARANOV, P.Ya., dots., red.; LEYBOV, R.M., prof., red.; SHTOKMAN, I.G., prof., red.; POLESIN, Ya.L., otv. red.; YEROKHIN, G.M., tekhn. red.

[Safety measures in the coal industry] Tekhnika bezopasnosti v ugol'noi promyshlennosti. Moskva, Gosgortekhizdat, 1963. 317 p. (MIRA 16:12)

1. Donetskiy politekhnicheskiy institut (for Taranov, Shtokman).

(Coal mines and mining—Safety measures)

NAYDYSH, A.M., prof.; BRATISHKO, A.S., inzh.; ZEMLYANSKIY L.V., inzh.; LEBEDEV, N.N., inzh.; CHUYKOV, G.L., inzh.

Determining the optimum load on a panel for mines with a high methane liberation. Izv. vys.uchev.zav.:gor.zhur. 7 no. 4:26-32 '64. (MIRA 17:7)

1. Donetskiy politekhnicheskiy institut. Rekomendovana kafedroy razrabotki mestorozhdeniy poleznykh iskopayemykh.

OGLOBLIN, D.N., prof., doktor tekhn.nauk; NAYDYSH, A.M., doktor tekhn.nauk;
RUSAKOV, N.G., kand.tekhn.nauk

Readers' response to the article by S.T.Kuznetsov, I.L.Davydovich, M.V.Korotkov, and S.P.Koltenkov; "Ugol'", 1961, No. 11 "Review of the book by V.P.Prokof'ev and K.P.Zaika "Efficient methods of development mining and systems of working contiguous seams." Ugol' 38 no.3:61-62 Mr '63. (MIRA 18:3)

1. Donetskiy politekhnicheskiy institut (for Ogloblin, Naydysh).
2. Institut gornogo dela AN UkrSSR (for Rusakov).

LOSYATINSKIY, A.; TSVETAYEV, N.; NAYENKO, A.

Increase the volume of payments by checks in the turnover of payments. Den. i kred. 20 no.11:49-52 N '62. (MIRA 16:1)

(Moldavia—Checks)

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SOV/112-59-17-37132

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Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 17, p 194 (USSR)

AUTHOR: Nayer, V.A.

TITLE: Thermo-Electric Heat Pumps 3

PERIODICAL: Tr. 1-y Mezhvuzovsk. konferentsii po sovrem. tekhn. dielektrikov i poluprovodnikov. 1956. Leningrad, 1957, pp 330-334

ABSTRACT: As an example of application of thermo-electric pumps a thermo-electric evaporating installation is considered, which is based on the principle that the heat of condensating vapor is used as a heat of "evironment", and the temperature drop between the cold and hot junctions of thermocouples secures only the heat transfer between the condensating vapor and the feeding liquid. The results of calculation of a thermo-electric evaporating installation and data for determination of the number of thermocouples and of current magnitude are supplied, as well as data for determining the weight and sizes of semiconductor batteries.

G.Ye.Kh.

Card 1/1

MAYER, V.A., Cand Tech Sci -- (diss) "Thermo-electric heat pumps." Odessa, 1959. 19 pp with graphs (Min of Higher Education USSR. Odessa Technological Inst of Food and Refrigeration Industry. Chair of Refrigeration ~~engines~~ Machines). 150 copies (KL,37-59, 109)

24

MARTINOVSKI, V. S., NAYEK, V. A.

"On the Energy Efficiency of Thermoelectrical Refrigeration."

Report submitted for the 10th Intl. Refrigeration Congress, Copenhagen, 19 August - 2 September 1959.

VIKHOREV, G.; NAYER, V.

Effect of heat emission on the characteristics of a semiconducting thermopile for coolers and heat pumps. Fiz. tver. tela 1 no.6:903-907 Je '59. (MIRA 12:10)

1. Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti.
(Thermopiles)

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SOV/181-1-8-6/32

8(4)

AUTHOR: Nayer, V. A.

TITLE: Experimental Investigation of a Thermoelectric Vaporization Device

PERIODICAL: Fizika tverdogo tela, 1959, Vol 1, Nr 8, pp 1193-1197 (USSR)

ABSTRACT: Academician A. F. Ioffe made an exact investigation of the problems of thermo-electric cooling and heating. The use of a semiconductor thermo-battery as heat pump in a vaporization device is therefore advantageous because the heat of condensation of the fluid to be vaporized is used as the heat of the surrounding medium and because the temperature difference between the hot and the cold soldered joints of the thermo-battery warrants heat exchange only between condensing vapor and boiling fluid. The use of the heat of condensation of the fluid to be vaporized renders it possible to considerably increase the temperature T_o of the cold soldered joints of the thermo-battery and to keep T_o near the temperature of the condensing vapor. A test device for thermo-electric vaporization was designed and tested in order to check the above mentioned

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Experimental Investigation of a Thermoelectric Vaporization Device

facts by experiment. Semiconductive materials were supplied by the Institut poluprovodnikov AN SSSR (Semiconductor Institute of the AS USSR). The thermo-electric vaporization apparatus which is illustrated in a figure consists of a semiconductor thermo-battery, a vaporizer, a condenser, a steam dome, and a tube each for draining off vapor and condensate. The vaporizer was placed in a thermostat. Tap water served as fluid to be vaporized. After the thermo-battery is put in temperature increases at the hot soldered joints and the water starts boiling. The temperature difference at the soldered joints of the refrigerator-system thermo-battery consists of the useful difference ΔT_1 and of the difference ΔT_2 which is necessary for the heat transfer. In the vaporizers holds $\Delta T_1 = 0$ and the temperature difference at the soldered joints consists of only ΔT_2. A graph depicts the dependences $T = f(I)$ and $T_o = f(I)$ for a thermo-electric vaporizer for the different values of incrustation at the hot soldered joints. Incrustation is characterized by the thermal resistance δ/λ. The amperage dependence of the

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Experimental Investigation of a Thermoelectric Vaporization Device

temperature at the soldered joints has a strong influence upon the energy characteristics of the vaporizer. The third diagram illustrates the dependence of the thermal coefficient φ of the thermocell on amperage at various values of the "incrustation" at the hot soldered joints. The best mode of operation can be selected only on the basis of technical and economical calculations. Knowledge of the energy characteristics $\varphi = f(I)$ at ΔT = const renders it possible to check the main assumptions in the theory of thermo-electric cooling and heating. The maximum values of the thermal coefficient and of the optimum amperage are in good agreement with the theoretical values. Another diagram shows the experimental dependence $\varphi_{max} = f(\Delta T)$. The device discussed saves much thermal and electric energy as compared to the devices with usual electric heating. At $\Delta T = 5$ to 7° the consumption of electric energy can be reduced for the 8- to 7-fold. There are 6 figures and 4 Soviet references.

ASSOCIATION: Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti (Odessa Institute of the Technology of Food

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SOV/181-1 -8-6/32

Experimental Investigation of a Thermoelectric Vaporization Device

and Refrigerator Industry)

SUBMITTED: August 18, 1958

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86307
S/066/60/000/004/001/001
A053/A026

24.7600 1043, 1035, 1137

AUTHORS: Martynovskiy, V. Professor, Nayer, V. Candidate of Technical Sciences

TITLE: Experimental Investigation of a Semiconductor Water Cooler

PERIODICAL: Kholodil'naya Tekhnika, 1960, No. 4, pp. 13-16, USSR

TEXT: Semiconductor water coolers permit to realise the cooling cycle with changing temperatures more simple and with less heat loss than compression coolers. The absence of intermediate heat carriers in semiconductor coolers reduces the irreversibility of heat exchange. The power efficiency of semiconducting materials is characterized by the value z, introduced by Academician A.F. Ioffe. This value for the materials known up to now can be expressed approximately as follows $z = 3 \cdot 10^{-3} \frac{1}{^{\circ}K}$. An experimental verification of the effectivenes of a thermoelectric device was obtained by investigating the cooling of water in a semiconductor water cooler. The article describes the design of the apparatus which consists of 2 sections, each section being made of a tube 550 mm long having a diameter of 16 x 10 mm and divided into 10 thermal elements, insulated from each other. Electric commutation takes place by means of fins on hot-soldered joints and by the elements of the tube on cold-soldered joints. The semi-conducting material, received from the Institute of Semiconductors had

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Experimental Investigation of a Semiconductor Water Cooler

the characteristic $z = 1.7 \cdot 10^{-3} \frac{1}{^{o}K}$. The electric system provides for the possibility of parallel feeding from rectifier and from battery. When cooling water to 10-15°C, the cooling coefficient has a value of $\mathcal{E} = 2.5-1.25$, while the maximum theoretical cooling coefficient of a thermal battery with the same temperatures of the outgoing water is $\mathcal{E} = 1.7-0.9$. The cooling coefficient of a small compression water cooler has an approximate value of 3-2.5, under equal conditions. The author concludes that in view of the absence of moving parts and simplicity of design the installation of semi-conductor water coolers presents possibilities of interesting industrial applications. There are 4 figures, 1 table and 4 references: 3 Soviet and 1 Danish.

ASSOCIATION: Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti (Odessa Technological Institute of the Food and Refrigeration Industry).

Card 2/2

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

IL'CHENKO, S.G., otv. red.; CHUKLIN, S.G., zam. otv. red.; RYZHENKO, L.P., red.; BADYL'KES, I.S., red.; ALEKSEYEV, V.P., red.; VEYNBERG, B.S., red.; GOGOLIN, A.A., red.; MEL'TSER, L.Z., red.; ZHADAN, S.Z., red.; MAYER, V.A., red.; MINKUS, B.A., red.; BARENBOYM, A.B., red.; NIKUL'SHINA, D.G., red.

[Transactions of the Conference on the Outlook for the Development and Introduction of Refrigerating Equipment into the National Economy of the U.S.S.R.] Trudy Konferentsii po perspektivam razvitiia i vnedreniia kholodil'noi tekhniki v narodnoe khoziaistvo SSSR. Moskva, Gostorgizdat, 1963. 262 p. (MIRA 18:3)

1. Konferentsiya po perspektivam razvitiya i vnedreniya kholodil'noy tekhniki v narodnoye khozyaystvo SSSR. Odessa, 1962. 2. Odesskiy tekhnologicheskiy institut pishchevoy i kholodnoy promyshlennosti (for Minkus, Barenboym, Chuklin, Nikul'shina, Zhadan). 3. Vsesoyuznyy nauchno-issledovatel'skiy institut kholodil'noy promyshlennosti (for Gogolin, Badyl'kes).

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... thermoelements determine the value of the current passing through the cooler and the voltage drop. The coolers were tested on P210 transistors operating with a ...

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S/143/60/000/006/006/008
A169/A026

26.2532

AUTHORS: Martynovskiy, V.S., Doctor of Technical Sciences, Professor; Nayer, V.A., Candidate of Technical Sciences

TITLE: Investigation of an Electrothermal Evaporation Apparatus

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Energetika, 1960, No. 6, pp. 104 - 109

TEXT: Semiconductor thermopiles can be used for generating cold in refrigeration equipment and for producing heat in evaporation apparatus. The power analysis of the electrothermal effect of cooling shows that the conventional method of generating cold with the aid of compressor or absorption devices is still more efficient for the time being. A semiconductor cooling device, functioning according to the Peltier effect, will have a 2.5 - 3 times higher power consumption than a comparable compressor cooling unit. A number of essential advantages of semiconductor thermopiles in cooling units creates favorable prospects for their application in different devices and low-capacity cooling equipment (some 10 kcal/h). Semiconductor thermopiles can be used with greater efficiency in evaporation and distillation apparatus. The authors investigated ex-

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Investigation of an Electrothermal Evaporation Apparatus A169/A026

perimentally the efficiency of a semiconductor thermopile in an evaporation installation. The thermopile consisted of 54 elements of 5 x 10 x 10 mm. The semiconductor material was obtained at the Institut poluprovodnikov imeni akademika A.F. Ioffe (Institute of Semiconductors imeni Academician A.F.Ioffe). The experimental apparatus (Fig. 2) and the measuring system (Fig. 3) are briefly described. The capacity of the semiconductor heating element was 150 kcal/h. The results of the experimental investigation of the low-capacity evaporation installation confirm the possibility to reduce the electric energy consumption by four to five times with a semiconductor thermopile compared to the direct electric heating method (at a temperature difference in the apparatus equal to 10°C). There are 5 figures and 3 Soviet references.

ASSOCIATION: Odesskiy tekhnologicheskiy institut kholodil'noy promyshlennosti (Odessa Technological Institute of the Refrigeration Industry)

SUBMITTED: January 29, 1960

APPROVED FOR RELEASE: Monday, July 31, 2000 CIA-RDP86-00513R001136220(

Investigation of an Electrothermal Evaporation Apparatus

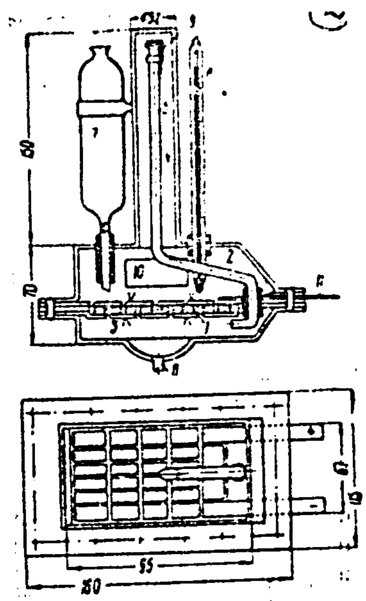

Figure 2: Experimental evaporation apparatus

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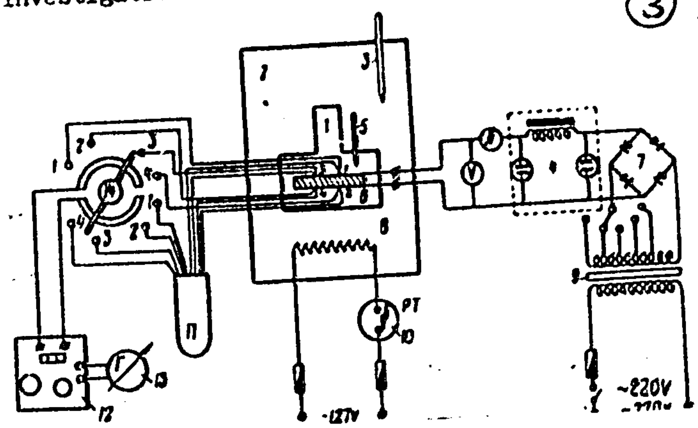
Investigation of an Electrothermal Evaporation Apparatus



(3)

Figure 3: Measuring system of experimental apparatus. 1 - evaporation apparatus; 2 - thermostat; 3 - thermometer; 4 - electrofilter; 5 - thermometer; 6 - thermobattery; 7 - rectifier; 8 - thermostat heater; 9 - transformer section; 10 - temperature relay; 11 - Duar-vessel; 12 - potentiometer; 13 - galvanometer; 14 - switch.

Card 4/4

22596

S/066/60/000/002/001/006
A003/A129

24.2700 1043 1035 1138
17.1204 26.1630

AUTHORS: Martynovskiy, V., Professor, Doctor of Technical Sciences; Nayer, V.A., Engineer

TITLE: Fields of effective application of semiconductor thermobatteries

PERIODICAL: Kholodil'naya tekhnika, no. 2, 1960, 4 - 7

TEXT: The effective application of semiconductor thermobatteries is studied employing a water cooler and evaporation installations tested in the laboratory of refrigerating machines at the Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti (Odessa Technological Institute of the Food and Refrigerating Industry). Figure 1 shows the principal diagram of the semiconductor water cooler. The water to be cooled is supplied to the cold junctions of the thermobattery. The heat is removed from the hot junctions by various methods. If the heat removal is effected without circulation of the liquid, the surface of the hot section of the water cooler is ribbed and the cold section is insulated. Semiconductor water coolers ensure a more complete reversible heat exchange between the water to be cooled and the coolant. In semiconductor thermobatteries a reversible heat exchange is obtained by parallel connection of the

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groups of thermoelements into thermobatteries. Within the groups the thermoelements are connected in series. The commutation of the thermoelements in such a thermobattery is shown in Figure 2. The processes of water cooling with the aid of a semiconductor thermobattery and a compression installation are shown in Figure 3. It is seen that a step-type thermobattery ensures the cooling of a liquid with the aid of a triangular cycle 1 — 2 — 3. Presently known semiconductor materials with $z \cdot 10^3 = 2.5 - 3.3$ ensure approximately the same power efficiency of the water coolers as compression installations operating with a one-stage compression cycle. A sectional thermobattery is calculated by the following method: the power W used by the thermobattery is calculated by the formula $W = u \sum I_i$ (1), where u is the voltage on the thermobattery, I_i is the current passing through the i-group. The value I_i is determined from the optimum operation conditions of the thermoelements

$$I_i = \frac{(e_1 + e_2)(T - T_{oi})}{\left(\sqrt{1 + \frac{T + T_{oi}}{2} z} - 1\right) r_i}. \qquad (2)$$

where e_1 and e_2 are the thermo-emf of the branches of the thermocouples, r_i is the electrical resistance of the thermocouple in the i-group, T is the temperature of the liquid on hot junctions, T_{oi} is the average temperature of the water to be cooled on the section of the i-group. Besides that, $I_i = \frac{u - (e_1 + e_2)(T' - T'_{oi})}{r_i n_i}$, (3)

where T' and T'_{oi} are the temperatures of the junctions of the thermocouples. From Formula (3) the number of thermocouples n_i can be found. The cold output of the i-group is determined by $Q_{oi} = u\, I_i\, \varepsilon_{i\ max}$, (4), where $\varepsilon_{i\ max}$ is the refrigerating coefficient of the i-group determined by the following expression:

$$\varepsilon_{i\ max} = \frac{\varepsilon'_{max} - \frac{\lambda}{2l\alpha}}{1 + \frac{\lambda}{2l}\left(\frac{1}{\alpha} + \frac{1}{\alpha_0}\right)} . \quad (4')$$

The total heat output of a sectional thermobattery is found to be the sum $Q_o = \Sigma Q_{oi}$ (5). In evaporation installations the higher efficiency of semiconductor devices is explained by the small temperature difference between the junctions of the thermocouples and by the high temperature of the cold source. The maximum temperature difference ΔT_{max} is connected with the characteristic z of the materials and with the temperature of the cold source T_o : $\Delta T_{max} = \frac{1}{2} z T_o^2$. (6). In a semiconductor evaporation installation (Fig. 4) the liquid to be evaporated is supplied onto the hot junctions of the thermobattery, where it boils. The vapor formed passes through a pipe to the cold junctions and is condensed. It is shown that tho efficiency of semiconductor evaportation installations surpasses the efficiency of ejector installations and at $z = 3 \cdot 10^{-3}$ $\frac{1}{K}$ approaches compression installations. A semiconductor refrigerating box can compete with a compression-type box only at $z \cdot 10^3 = 6 - 8$. Semiconductor distillers, compared to direct electrical heating, reduce the consumption of electric power 5 - 7 times at $z \cdot 10^3 = 1.7 - 1.8$, and 7 - 10 times at $z \cdot 10^3 = 3$. There are 6 figures and 6 Soviet-bloc references.

ASSOCIATION: Odesskiy tekhnologicheskiy institut i kholodol'noy promyshlennosti (Odessa Technological Institute of the Food and Refrigerating Industry)

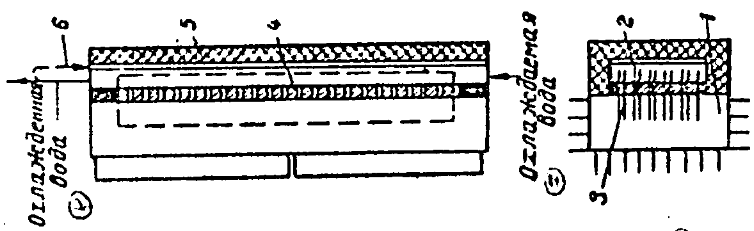

Figure 1: Semiconductor water cooler. 1 - container for cooling water; 2 - ribs of the cold junctions; 3 - ribs of the hot junction; 4 - thermobattery; 5 - heat-insulation; 6 - removal of the water into the regenerating heat-exchanger; (7) water to be cooled; (8) cooled water.

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Experimental investigation of a semiconductor water cooler. Khol. tekh. 37 no.4:13-16 Jl-Ag '60. (MIRA 13:11)

1. Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti.
(Refrigeration and refrigerating machinery)
(Semiconductors)

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S/066/61/000/003/001/002
D051/D112

AUTHOR: Martynovskiy, V.S., Doctor of Technical Sciences
Nayer, V.A., Candidate of Technical Sciences

TITLE: Semiconductor heat transfer intensifiers and heat insulators

PERIODICAL: Kholodil'naya tekhnika, no. 3, 1961, 4-7

TEXT: The authors examine the problem of whether sets of semiconductor thermocouples (thermobatteries) can be also used as heat transfer intensifiers and heat insulators. They consider the case where such a set keeps separate two media with the temperatures T'_0 and T', T'_0 being higher than T'. If the circuit is disconnected, heat exchange will be carried out through the wall, where through a temperature drop the presence of a heat flow will cause a potential difference at the output terminals of the set (Seebeck effect). In this case the set appears as a heat-transferring wall and as a thermoelectric generator. Short-circuit causes the Peltier effect. The short-circuit current reduces the temperature difference between the thermocouple junctions. In connection therewith the temperature of the wall from the side of the heat-supplying medium will be reduced, whereas it will be increased from the side of the heat-receiving medium. In this way the heat flow increases due to

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increasing temperature drive between heat-exchanging media and wall. In the wall itself the heat transfer is realized by means of thermal conductivity and by conduction electrons. An external source of emf can change the current of the set and affect the heat flow. It can produce a current directed against the thermocurrent or coinciding with it. In these cases the heat flows at the junctions of the set have different values. In the first case an increase of the emf of the external source will result in an increase of the wall temperature on the side of the heat-supplying medium and in a reduction of temperature on the side of the heat-receiving medium, while the heat flows at the junctions will diminish. On considerable increase of the emf the current changes direction and the temperature of the hot junctions will be equal to the temperature of the heat-supplying medium. The heat-exchange between the medium and the wall will cease. The heat-receiving medium only receives the work of the external source. For the heat-supplying medium the thermobattery changes, as it were, into an ideal heat insulator. In the second case an increase of the emf of the external source results in an increase of the temperature drive between media and wall and further in an increase of the densities of the heat flows q_o and q (q_o and q - density of the heat flow from the side of the medium with T_δ and from the side of the medium

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with T', respectively). At the same time the current of the chain always exceeds the short circuit current; the heat transfer is intensified due to additional consumption of electric energy. The terms q_0 and q can be determined according to the formulae:

$$q_0 = \frac{1}{2} \cdot \frac{q'_0\left(1-\frac{el}{2\alpha}+\frac{\lambda}{2l\alpha}\right)-q'\frac{\lambda}{2l\alpha}}{\left(1-\frac{el}{2\alpha}+\frac{\lambda}{2l\alpha}\right)\left(1+\frac{el}{2\alpha_0}+\frac{\lambda}{2l\alpha_0}\right)-\frac{\lambda^2}{4l^2\alpha\alpha_0}}, \quad (1)$$

$$q = \frac{1}{2} \cdot \frac{q'\left(1+\frac{el}{2\alpha_0}+\frac{\lambda}{2l\alpha_0}\right)-q'_0\frac{\lambda}{2l\alpha_0}}{\left(1-\frac{el}{2\alpha}+\frac{\lambda}{2l\alpha}\right)\left(1+\frac{el}{2\alpha_0}+\frac{\lambda}{2l\alpha_0}\right)-\frac{\lambda^2}{4l^2\alpha\alpha_0}}, \quad (2)$$

where: где:

$$q'_0 = eT'_0 I - \frac{1}{2}\rho l I^2 + \frac{\lambda}{l}(T'_0 - T'), \quad (3)$$

$$q' = eT' I + \frac{1}{2}\rho l I^2 + \frac{\lambda}{l}(T'_0 - T'). \quad (4)$$

In the formulae (1)-(4):
e, ρ, λ - reduced values of thermoelectric parameters of semiconductor materials; T'_0 and T' - temperatures of the heat-exchanging media;
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α_o and α - coefficients of heat transfer;
i - density of the current;
l - length of the thermocouples.

The derivation of these formulae for the case when the set of thermocouples works under conditions required for a refrigerator was given by G. Vikhorev and V. Nayer (Ref. 2: Vliyaniye teploctdachi na kharakteristiki poluprovodnikovykh termobatarey dlya kholodil'nikov i teplovykh nasosov [Effect of heat transfer on the characteristics of semiconductor thermobatteries for refrigerators and heat pumps], Fizika tverdogo tela, vol. I, no. 6, 1959). Depending on the purpose of the installation either the heat taken from the medium with T_o' or the heat transmitted to the medium with T' can be considered as a positive effect of a battery of thermocouples. In these cases the efficiency of a heat transfer intensifier will be characterized by the coefficients ε and φ

$$\varepsilon = \frac{q_o}{w} = \frac{q_o}{q - q_o}, \qquad (5)$$

$$\varphi = \frac{q}{w} = \frac{q}{q - q_o}. \qquad (6)$$

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The temperatures of the junctions of the thermocouples T'_0 and T are determined from the relations

$$T_0 = T'_0 - \frac{q_0}{\alpha_0}, \quad (7)$$

$$T = T' + \frac{q}{\alpha}. \quad (8)$$

Fig. 1 shows the basic operation systems of semiconductor thermobatteries under the conditions required by a refrigerator, a thermoelectric generator, and a heat transfer intensifier; it also shows the dependencies of the junction temperatures, of the heat flow densities, and of the coefficient ε on the density of the current. The schemes were plotted according to the formulae (1) - (8). The working of a semiconductor battery under the conditions of a heat transfer intensifier was studied at the laboratory of semiconductors of the Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti (Odessa Technological Institute of the Food and Refrigeration Industry). The experiments were carried out by Engineer S.A. Rozhentseva. It was tried to establish the conditions of intensification of heat transfer between condensing water or ethyl alcohol vapors on the one side of the battery and boiling methyl alcohol on the other. The normal boiling and condensation temperatures of ethyl and methyl alcohol are 78 and 65°C. In this way the temperature differences between the media were 35 and 13°C. The experimental results are given in fig. 2 and 3. Fig. 2 shows the dependencies of the densities of q, q_o, and on i for the case of heat exchange between ethyl and methyl alcohol. The continuous lines indicate the relations q = f (i), q_o = f (i) and φ = f (i), if the thermobattery is fed from a rectifier connected as a bridge. The dotted lines show the relations when the thermobattery is fed from accumulator batteries. When the current is absent, q* = q_o* = 1060 kcal/m^2 hour. At a short circuit current density of 1.8 a/cm^2, q and q_o will increase to 1800 kcal/m^2 hour. In this case an external power source will not be used for the intensification of heat transfer. If the battery is fed from an external source, the heat transfer will be intensified. For instance, for the rectifier scheme at i = 11 a/cm^2, q and q_o increase approximately by 5 times; the electric energy consumed is about 15% of the whole amount of transferred heat, i.e. φ = 6.7. The highest values obtained for q and q_o were 26600 and 8950 kcal/m^2 hour, respectively. The maximum value for q_o was observed at i = 37.5 a/cm^2. In this case φ = 1.5. When fed from accumulators the energy indices of the installation improved under all operation conditions by approximately 10-15% as compared with those obtained through rectifier feeding. Fig. 3 shows the same dependencies for

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the case of heat exchange between condensing water and methyl alcohol vapors. The values q_0^* and q^* were 5200 kcal/m^2 hour. The density of the short circuit current was equal to 5.5 a/cm^2. The highest q and q_o values were 18600 and 14000 kcal/m^2 hour. φ was equal to 3. A comparison between these two experiments shows that semiconductor intensifiers of heat transfer will be suitably used in those cases where natural heat exchange is not sufficiently intensive. There are 3 figures and 2 Soviet-bloc references.

ASSOCIATION: Odesskiy tekhnologicheskiy institut pishchevoy i kholodil'noy promyshlennosti (Odessa Technological Institute of the Food and Refrigeration Industry)

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26.2181

S/181/61/003/004/014/030
B102/B214

AUTHORS: Nayer, V. A. and Rozhentseva, S. A.

TITLE: Designing semiconductor thermopiles for refrigerators

PERIODICAL: Fizika tverdogo tela, v. 3, no. 4, 1961, 1125-1131

TEXT: The authors give a new method for calculating the thermal, energy, and temperature characteristics of semiconductor refrigerators. For the calculation of semiconductor thermopiles, formulas have been used so far, which are based on a consideration of the inner energy processes that come in play in a thermocouple. The cooling capacity $Q_0(I)$ and the cooling coefficient $\varepsilon(I)$ are calculated on the assumption that the contact temperature of the thermocouples are independent of the current strength I; they are functions having a maximum between the zero limits. Experimental studies of semiconductor refrigeration units showed, however, that the function $\varepsilon(I)$ has no extremum. An extremum will appear only if the contact temperature is artificially kept constant during the experiment. Since in usual practice a close relationship exists between the character-

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istics of the refrigeration unit and the cooled object, it is not possible to limit oneself to a consideration of the inner energy processes. This appears from the fact that T_0, T', and $(T-T_0)$ are non-vanishing functions of the current. Now, these facts are taken into consideration for the calculation of the characteristics of semiconductor thermopiles for a refrigeration unit. The following is the meaning of the symbols used: e_1, e_2 - coefficients of the thermo-emf of the thermocouple, ^oK; ρ_1, ρ_2 - the electrical resistivities, ohm.cm; λ_1, λ_2 - coefficients of heat conduction, w/cm.^oK; S_1, S_2 - cross sections of the two sides of the thermocouple, cm^2; l - length, cm; T_0 and T - temperature of the cold and the hot side, respectively, ^oK; T_0' and T' - temperature of the cooled object and the surrounding medium, respectively; α_0 and α - heat transfer coefficients of the hot and the cold side of the thermocouple, w/cm^2.^oK; kF - heat transmissivity of the container, w/^oK; further,

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$e = e_1 + e_2$; $\rho = \left[\rho_1\left(1 + \frac{1}{m}\right) + \rho_2(1 + m)\right]$, $S = S_1 + S_2$;

$\lambda = \left[\frac{\lambda_1}{1 + \frac{1}{m}} + \frac{\lambda_2}{1 + m}\right]$, $m = S_1/S_2$ (see also Fig. 2). The quantity of heat Q_o taken from the cold side and the quantity (Q) released on the hot side are given by:

$$Q_0 = eT_0I - \frac{1}{2} I^2\rho \frac{l}{S} - \lambda \frac{S}{l}(T - T_0), \quad (7)$$

$$Q = eTI + \frac{1}{2} I^2\rho \frac{l}{S} - \lambda \frac{S}{l}(T - T_0). \quad (8)$$

The contact temperatures are $T_o = T_o' - Q_o/\alpha_o S$, and $T = T' + Q/\alpha S$; the temperature inside the cooled object is $T_o' = T' - Q_o/kF$. Then, on eliminating T, T_o, and T_o', one obtains:

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$$Q_0 = \frac{Q_0'(1 - al + b) - Q'b}{(1 - al + b)(1 + cl + b) - bd}, \qquad (12)$$

(12)

$$Q = \frac{Q'(1 + cl + d) - Q_0'd}{(1 + cl + d)(1 - al + b) - bd}. \qquad (13)$$

(13)

with

$$Q_0' = eT'l - \frac{1}{2} I^2 \rho \frac{l}{S}, \qquad (14)$$

(14)

$$Q' = eT'l + \frac{1}{2} I^2 \rho \frac{l}{S}, \qquad (15)$$

(15).

$$a = \frac{e}{\alpha S}, \quad b = \frac{\lambda}{\alpha l},$$

$$c = e\left(\frac{1}{\alpha_0 S} + \frac{1}{kF}\right); \quad d = \frac{\lambda}{l}\left(\frac{1}{\alpha_0} + \frac{S}{kF}\right).$$

The cooling coefficient is given by

$$\frac{1}{\delta} = \frac{Q}{Q_0} - 1,$$

$$\frac{1}{\delta} = \frac{(\delta' + 1)(1 + cI + d)}{\delta'(1 - aI - b)} - 1. \quad (16)$$

$$\delta' = \frac{Q_0'}{Q' - Q_0'}.$$

(16).

(12), (13), and (16) serve for the construction of thermal and energy characteristics. Simplified relations which suffice in most cases are obtained with $\alpha = \infty$, and $\alpha_0 = \infty$ (i.e., $T_0 = T_0'$, and $T = T'$):

$$Q_0 = \frac{eTI - \frac{1}{2} I^2 \rho \frac{l}{S}}{1 + \frac{eI}{kF} + \frac{\lambda \frac{S}{l}}{kF}}, \quad (17)$$

(17)

$$\frac{1}{\varepsilon}=\frac{eI}{kF}\left(\frac{\rho\frac{l}{S}}{e}\,\frac{kF+eI+\lambda\frac{S}{l}}{eT-\frac{1}{2}I\rho\frac{l}{S}}+1\right). \qquad (18) \qquad (18)$$

$$T_0=\frac{T\left(kF+\lambda\frac{S}{l}\right)+\frac{1}{2}I^2\rho\frac{l}{S}}{kF+eI+\lambda\frac{S}{l}}. \qquad (19) \qquad (19).$$

An analysis of these equations and of the corresponding characteristics (Fig. 3) shows that: 1) The energy characteristic $\varepsilon = f(I)$ has no extremum and decreases monotonously with increasing I. For $I = 0$, $\varepsilon = \infty$, and for $I = 2eT/(\rho l/S)$, $\varepsilon = 0$. 2) $Q_0 = f(I)$ has an extremum. $Q_0 = 0$ for $I = 0$ and $I = 2eT/(\rho l/S)$. The optimum Q_0 value is obtained from the extremum condition $\partial Q_0/\partial I = 0$:

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