KUROS, A. G. [Kurosh, A. G.]; LIVSIT, A. H. [Livshits, A. Kh.]; SULGHEIFER, E. G. [Shul'geyfer, Ye. G.]

Fundamentals of the theory of categories. Tr. from the Russian. Analele mat 15 no.4:35-84 O-D '61.

(Groups, Theory of)
(Logic, Symbolic and mathematical)

LIVSHITS, A.Kh.

Direct decompositions of idempotents in semigroups. Trudy Mosk. mat. ob-va 11:37-98 '62. (MIRA 15:10)
(Groups, Theory of)

LIVSHITS, A.Kh. (Moskva)

Summation of mappings and the center concept in categories.
Mat.sbor. 60 no.2:159-184 F '63. (MIRA 16:4)
(Algebraic topology)

LIVSHITS, A Kh.

Category-theoretic bases of the duality of radicalness and semisimplicity. Sib. mat. zhur. 5 no. 2:319-336 Mr-Ap '64. (MIRA 17:5)

LIVSHITS, A.Kh.; TSALENKO, M.S.; SHUL'GEYFER, Ye.G. (Moskva)

Manifolds in categories. Mat. sbor. 63 no.4:554-581 Ap '64.
(MIRA 17:6)

USSR/ Miscellaneous - Industrial processes

Card 1/1 Pub. 103 - 5/24

Authors : Livshits, A. L., and Rassokhin, V. Ya.

Title : Modern state and perspectives for the development of a technique for dimensional machining of metals by electrical methods

Periodical : Stan. i instr. 11, 12-17, Nov 1954

Abstract : The electrical methods of metal machining include such processes during the realization of which the removal of the metal or change in the structure of the surface layer appear to be the result of thermal, chemical or combined thermal and chemical effect of the electrical current fed directly to the object and tool bypassing the intermediate phases of transforming the energy of electrical current into mechanical, thermal, electromagnetic or other types of energy. The conditions required for the realization of dimensional electrical machining of metals are listed. The method of controlling electrical machining processes is described. Two USSR references (1951). Tables; illustrations.

Institution : ...

Submitted : ...

LIVSHITS, A. L.

USSR/ Engineering - Metal working

Card 1/1 Pub. 103 - 3/25

Authors : Rassokhin, V. Ya., and Livshits, A. L.

Title : Present status and perspectives for the industrial application of electric methods of working metals

Periodical : Stan. i instr. 1, 8-12, Jan 1955

Abstract : The profiling and machining of cutting tools by electric means is discussed, and a description is presented of electric-spark, electric-impulse, anode-mechanical, and electric-contact pitting methods. Technical data is also given on newly constructed pitting-copying machines of the type IKZ-18, 4A722, and 3000 ENIMS, produced by the Design Bureau of the Ministry for Machine Construction and Tool Industry. Graph, illustrations.

Institution : .....

Submitted : .....

LIVSHITS, A.L.; RODACHEV, I.S.

Generators for units machining metals by electropulse technique.
Stan. i instr. 27 no.11:1-5 N '56. (MLRA 10:1)
(Metalworking machinery)

LIVSHITS, A.L., kandidat tekhnicheskikh nauk; GUTKIN, B.G., kandidat tekhnicheskikh nauk, retsenzent; UVAROVA, A.F., tekhnicheskiy redaktor.

[Electric erosion treatment of metals] Elektroerozionnaia obrabotka metallov. Moskva, Gos.nauchno-tekhn.izd-vo mashinostroit. lit-ry, 1957. 117 p. (MLRA 10:6)
(Metal cutting) (Metals--Hardening)

LIVSHITS, A.L.; BRISKMAN, M.I.

The 473 electric pulse push-broaching and copying machine. Stan. i instr. 28 no.5:10-15 My '57. (MLRA 10:6)
(Broaching machines)

LIVSHITS, A.L., kandidat tekhnicheskikh nauk.;ROGACHEV, I.S., kandidat tekhnicheskikh nauk, dotsent.

Generators for electroimpulse processing of metals. Elektrichestvo no.3:19-23 Mr '57. (MLRA 10:4)

1. Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov (for Livshits). 2. Khar'kovskiy politekhnicheskiy institut im. Lenina (for Rogachev).
(Metals--Heat treatment)

LIVSHITS, A. L. (Candidate of Technical Sciences)

"Present-day Status and Trends in the Development of Electrical Methods of Processing Metals." p. 136
in book Modern Trends in the Field of Machine Building Technology; Collection of Articles, Moscow, Mashgiz, 1957 363 p.

The article reviews some of the most up-to-date methods employed in the USSR. There are no references.

LIVSHITS, A. L. (Candidate of Technical Science)

Barke, V. N., Engineer, and Livshits, A. L., Candidate of Technical Science.

"Present-day Status and Trends in the Development of Ultrasonic Processing of Materials." p. 152
in book Modern Trends in the Field of Machine Building Technology: Collection of Articles, Moscow, Mashgiz, 1957, 363 p.

The authors present a brief outline of the underlying mechanical and hydrodynamic hypothesis of ultrasonics and a description of an ENIMS-built device. There are three references of which two are Soviet and one English.

RURA, A.M., kand. tekhn. nauk; BRYANTSEVA, V.P., inzh., ved. red.; LIVSHITS, A.L., kand. tekhn. nauk, red.; SOROKINA, T.M., tekhn. red.

[Manufacture of diamond draw plates using electric techniques] Izgotovlenie almaznykh volok s primeneniem elektroobrabotki, Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 23 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 8. No.M-58-399/8) (MIRA 16:2)
(Wire drawing)

GRISHIN, Valerian Maksimovich, inzh.; GUTKIN, Ben'yamin Girshevich, kand. tekhn. nauk; LIVSHITS, Abram Lazarevich, kand. tekhn. nauk; YAKHIMOVICH, Dmitriy Fedorovich, inzh.; BRYANTSEVA, V.P., inzh., red.; SOROKINA, T.M., tekhn. red.

[Dimensional electric spark machining of metals]Razmernaia elektroerozionnaia obrabotka metallov. Moskva, Filial Vses. in-ta nauchn. i tekhn. informatsii, 1958. 88 p. (Peredovoi nauchno-tekhnicheskii i proizvodstvennyi opyt. Tema 8, No.M-58-6/1) (MIRA 16:2)
(Electric metal cutting)

AUTHOR: Livshits, A.L. SOV/121-58-9-17/21

TITLE: Third All-Union Conference on Electric and Ultrasonic Machining (Tret'ye Vsesoyuznoye Soveshchaniye po elektro- i ultrazvukovoy obrabotke)

PERIODICAL: Stanki i Instrument, 1958, Nr 9, pp 41 - 42 (USSR)

ABSTRACT: The Third All-Union Conference on Electric and Ultrasonic Machining, called by the Leningrad Region and Central Administration of the NTO Mashprom, Gosudarstvennyy nauchno-tekhnicheskiy komitet pri Sovete Ministrov SSSR (State Scientific Research Committee of the Council of Ministers of the USSR) and Leningradskiy sovet narodnogo khozyaystva (Leningrad Council of National Economy) took place on June 2 - 7, 1958 in Leningrad. Over 800 specialists representing 450 scientific, design and teaching establishments and industrial plants took part. 90 papers were read, covering the fields of electro-erosion, ultrasonic, electro-hydraulic and electro-chemical machining. The introduction of new materials adds significance to new machining methods. Many inadequacies in the development of the new methods and equipment and in their adoption by the shops were revealed. The study of the physics of electro-erosion processes is proceeding at the

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Third All-Union Conference on Electric and Ultrasonic Machining

TsNILelektrom AN SSSR, LIKI (Leningrad Institute of Cinema Engineers), KhGU (Khar'kov State University), KhPI imeni Lenina (Khar'kov Production Institute) and others. This study has not yet yielded the scientific foundations of electro-erosion machining. A number of organisations, namely ENIMS and its chief design office, the Khar'kov Production Institute, the NIITSKhM (Scientific Research Institute for Agricultural Machinery), Lenkarz (Leningrad Carburettor Works) and others have pointed the way to a rational choice of electro-erosion machining procedures. New systems for automatically regulating the process and methods of designing electro-mechanical impulse generators have been devised. Nevertheless, the basic premises of the qualitative and quantitative theory of electro-erosion are still controversial and do not answer practical requirements. In the short impulse field (electric-spark machining), experimental models of new generators of higher and highest frequency (Lenkarz and others) have been created since the second conference (1955), permitting a greater output in the finish machining of carbides. Automatic machines for the machining of fuel injection equipment components have

been produced (Lenkarz, Leningrad Branch of the VPTI). In the field of long-impulse machining, a series of electro-mechanical unipolar impulse generators (MGI type) has been issued for batch production (KhPI, ENIMS, OKB ENIMS, KhEMZ). A number of universal copying-piercing benches of increased output have been developed for the machining of dies, moulds, chill moulds and cavities of complex shapes and also for the rough machining of carbides and special steels. New high-resistance carbon electrode materials have been selected or newly developed which, in electro-impulse machining, possess a rate of wear measured in fractions of 1% (ENIMS, Moscow Electrode Works and others). An effective procedure for the machining of dies and the piercing of openings in inaccessible spots has been developed (ENIMS, Leningrad Kirov Works, LF VPTI and others). In the field of anodic-mechanical machining, new designs of bandsaws (OKB ENIMS), of automatically operating tool grinders, production procedures and equipment for the grinding of carbides with electrically conducting abrasives and other processes have been developed (NIITSKhM and others). In the field of electric contact machining, a new process has been created. Powerful machines (dozens and hundreds

of kW) for the fettling of grey iron and steel castings and special steel ingots have been installed, exceeding in productivity the common mechanical and abrasive machining processes (ENIMS, NIITSKhM, LF VPTI, KhTZ, STZ and others). Many plants have adopted ultrasonic cleaning, ultrasonic machining of carbide dies and semiconductor materials and ultrasonic soldering and welding (ENIMS and others). Ultrasonic generators between dozens of W and dozens of kW (ENIMS, NIIChermet, OKB Lenelektroprom) have been designed and developed. However, to this day, the batch production of ultrasonic generators has not been organised. The conference noted the potentialities of electro-hydraulic machining of materials (Leningrad Polytechnical Institute). Electro-chemical treatment is confined to electro-polishing.

LIVSHITS, A.L.; BANNIKOV, G.K.; SIGAREV, A.M.

High-resistant electrodes used in machining metals by means of electric pulse techniques. Stan.i instr. 29 no.5:23-25 My '58. (MIRA 11:7)

(Electric metal cutting) (Electrodes)

PHASE I BOOK EXPLOITATION SOV/4841

Livshits, Abram Lazarevich, and Ivan Sergeyevich Rogachev

Generatory periodicheskikh impul'sov sil'nogo toka (Generators of Heavy-Current Periodic Pulses) Moscow, Gosenergoizdat, 1959. 198 p. 7,000 copies printed.

Ed.: I.A. Yakobson; Tech. Ed.: G.Ye. Larionov.

PURPOSE: This book is intended for technical and scientific personnel concerned with special problems of machining metals, electric drive, and other heavy-current pulse-technique applications. It may also be used by workers who construct special electric machines.

COVERAGE: The book contains a classification, survey, description of operating principles, and the derivation of basic relationships concerning generators of periodic pulses which are presently used for electromachining of metals. The authors present diagrams, list the types of relaxation, vacuum-tube, pool-cathode tube, and machine generators of symmetrical, nonsymmetrical variable-polarity, and unipolar heavy-current pulses and include comparative data and recommendations for their use. Special attention is given to those types of generators which already have wide industrial use. The authors thank Academi-

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cian M.P. Kostenko, and Professor T.S. Stekol'nikov, Doctor of Technical Sciences, for their help. There are 57 references: 53 Soviet, 3 English, and 1 German.

TABLE OF CONTENTS:

LIVSHITS, M. L.

PHASE I BOOK EXPLOITATION SOV/3901

Novoye v elektricheskoy i ul'trazvukovoy obrabotke materialov (New Developments in Electrical and Ultrasonic Machining of Materials) [Leningrad], Lenizdat, 1959. 281 p. 5,000 copies printed.

Ed. (title page): L.Ya. Popilov; Ed. (inside book): S.I. Borshchevskaya; Tech. Ed.: P.S. Smirnov.

PURPOSE: This book is intended for technical personnel and production workers.

COVERAGE: This is a collection of 20 articles presented at the Third All-Union Conference of the Scientific and Technical Society of the Machine Industry on Electrical and Ultrasonic Machining of Metals, held in Leningrad. The articles deal with the latest achievements in the field of electrical and ultrasonic machining of metals. New methods of machining presently being developed are described. References follow several of the articles.

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SOV/144-59-7-12/17

AUTHORS: Zingerman, A.S., (Cand. Tech. Sci., Docent, in Charge of the Chair of Electro-Technology) and Lirshits, A.L., (Cand. Tech. Sci., Director of the Laboratory for Electrical Methods of Machining)

TITLE: On the Physical Nature of Electro-erosion Machining of Metals

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 7, pp 78-93 (USSR)

ABSTRACT: Electric erosion is a complicated phenomenon which depends on a number of factors, of which the shape of the energy pulse fed to the discharge gap is the most important. By changing the shape of this pulse it is possible to change considerably the quantitative and the qualitative phenomena of electric erosion. It is due to this factor that a great variety of electro-erosion processes of machining are used and it is also due to this factor that during the last seven to eight years the productivity of electro-erosion machining has increased very appreciably and the rate of wear of the tools has dropped to a small fraction of what it was before (Ref 2). Electric pulse (pulse-arc) machining of metals, proposed in 1950 by one of the authors of this paper (Ref 1) and based on arc

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On the Physical Nature of Electro-erosion Machining of Metals

discharges produced by unipolar pulses of energy of relatively long duration, enabled increasing the productivity by a factor of about 10 as compared to that obtained with electric spark methods. Further development of electro-erosion machining and of new, more perfect variants of this type of machining, is closely linked with the study of the physical nature of electric erosion and of the processes accompanying this phenomenon. In this paper the authors review the present state of the development of theories and view of Soviet as well as of foreign authors on the physical phenomena of electro-erosion. In the first part the theoretical views, expressed by numerous authors, are discussed. In the second part available experimental data are reviewed under the following headings: applied test techniques; relation between the energy transmitted to the electrodes and that released in the discharge canal; influence of the pulse energy on the diameter and the depth of the produced cavity; influence of the pulse energy on electro-erosion; influence of the electrode spacing on the magnitude of the erosion; influence of the dielectric medium on the electro-erosion; influence of the electrode

On the Physical Nature of Electro-erosion Machining of Metals

material on the electro-erosion; influence of the electrode polarity on the electro-erosion; shape of the cavity profiles; pressures on the electrodes; dynamics of the process of formation of cavities. In conclusion the authors state that the available experimental data are inadequate for evolving a theory of the pertaining phenomena. Further systematic physical experiments are necessary for verifying and accumulating data and establishing empirical relations of this phenomena. In evolving a technological theory of electro-erosion machining of metals it is necessary to start off from the more simple phenomenon using a single pulse. However, change-over to technological conditions cannot be effected by purely arithmetical adding up of individual phenomena. It is necessary to elucidate the relations between the individual factors and their statistical distribution, for instance, the breakdown strength of a medium or other physical and chemical factors may not be of any importance in purely physical experiments but may have a considerable influence on the technological characteristics.

SOV/144-59-7-12/17

On the Physical Nature of Electro-erosion Machining of Metals

Development of the physical theory of electro-erosion is only the first step in developing physical fundamentals of the technology of electro-erosion machining of metals. There are 53 references, of which 31 are Soviet, 13 English, 3 German, 2 Polish and 4 Czech.

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ASSOCIATION: Kafedra elektrotekhniki, Leningradskiy institut kino-inzhenerov (Chair of Electro-Technology, Leningrad Institute of Cine-Engineers) (Zingerman); and Laboratoriya elektricheskikh metodov obrabotki, ENIMS (Laboratory for Electrical Methods of Machining, ENIMS) (Livshits)

SUBMITTED: November 24, 1958

LIVSHITS, Abram Lazarevich

Electro-Erosion Machining of Metals. Translated by E. Bishop; Edited by R.S. Bennett. Published in Association with Department of Scientific and Industrial Research. London, Butterworths, 1960.

xi, 115 p. Illus., diagrs., tables.

Translated from the original Russian: Elektroerozionnaya Obrabotka Metallov. Moskva, 1957.

Bibliographical Footnotes.

23431

S/121/61/000/006/006/012
D040/D112

1.1110

AUTHORS: Zingerman, A.S., Livshits, A.L., and Aronov, A.I.

TITLE: Wear of graphitized tool-electrodes in electrospark machining of metals

PERIODICAL: Stanki i instrument, no.6, 1961, 20-22

TEXT: Electrodes of special graphitized material ЭЭГ (EEG) were tested in experiments on a "473" electrospark machine. [Abstracter's note: No information on the composition and of the EEG and the production technology of the electrodes is included]. The material is now being mass-produced. Maximum relative wear (or consumption of the electrode in relation to the volume of removed metal) of EEG electrodes is about 2.5% in the center and 0.1-0.5% at the periphery, compared with 80-100% of old tool-electrodes. Oil (industrial "12" grade) pumped at a pressure of 0.5 gauge atmospheres into the spark gap reduced wear to a minimum; wear decreased with longer electric pulses (Table 2):

Work current, amps		Pulse duration in microseconds				
		900	415	170	120	75
5	Wear (%)	0.3	0.3	0.3	0.3	1.7
20		0.5	0.5	2.0	5.0	6.0

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Wear of graphitized tool-electrodes .....

The erosion resistance corresponded to Palatnik's criterion (Ref.4: Palatnik, L.S., "Doklady AN SSSR", t . 89, 1953, str.455; Ref.5: Zingerman, A.S., Fizika metallov i metallovedeniye, t. V, 1957, str.58):

$$\Pi = c \gamma \lambda T_n^2,$$

where c is heat capacity, γ - density; λ - heat conduction; T_n - reduced melting temperature (taking into account the latent fusion heat). EEG had 5-30 times higher erosion resistance than metals. Five times more metal was removed in the work process by using inverse polarity (workpiece for cathode, tool-electrode for anode) than with direct, and cathode wear was practically absent when single pulses were used. Transfer of metal from the workpiece was by splatter with droplets much less than 1 micron in size. Aluminum was not transferred to the graphitized cathode, and copper and steel only slightly, but the transfer of copper and steel to the anode was intense. No carbon was transferred from the electrode to the workpiece. This is due to the vaporous state of graphite during the electric discharges. The combinations of anode-graphitized material, and steel-cathode are good, for metal strengthens the electrode but does not absorb carbon. A fresh carbon layer liberated from oil continually restored the electrode surface. It was examined (by L.S. Palatnik) by X-ray analysis and found to be crystalline graphite.

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Wear of graphitized tool-electrodes .....

No graphite layer formed when the oil was replaced by inorganic fluid. This carbon stuck very firmly to the EEG and its mechanical strength was much higher than that of the EEG. The approximate formula for the rate of carbon formation is:

$$\delta = 0.33 \cdot 10^{-10}(T-1100)^3 \text{ micron/millisecond},$$

where T is the electrode temperature (in °C) in the work zone. The carbon forms from oil particularly intensely in an arc, and 4 times faster on the cathode than on the anode (0.33 micron/millisecond on the anode). The layer fills the gap rapidly and causes a short circuit. The mechanical strength and porosity affected wear - 8 times lower mechanical strength was accompanied by 21 times more rapid wear. Conclusions: Two opposite processes are acting in electrospark machining with EEG - disintegration and restoration. The restored layer is several microns deep and has much higher mechanical strength and erosion resistance than the base material. The rate of disintegration and restoration depends on the power, duration and duty factor reciprocal of the pulses, the worked surface area and depth of removed metal, pressure on pumped fluid, and other factors. Electrode wear can vary between 0.1 and 2.5%. When the combination of operation factors is correct, wear of EEG electrode tools on steel is between 0.3 and 0.8%. In some cases it is even possible that the rate of restoration is higher than that of disintegration. There are 4 tables and 6 Soviet-bloc references.

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S/119/61/000/007/005/008
D247/D306

AUTHORS: Livshits, A.L., and Sosenko, A.B.

TITLE: Extension of technological scopes of electric impulse machining

PERIODICAL: Priborostroyeniye, no. 7, 1961, 19 - 21

TEXT: The feature of this method of machining is the application of smoothly regulated prolonged arc unipolar voltage and current impulses of constant frequency. The speed of metal removal in the case of steel 45 exceeds 7000 mm3/minute with the surface cleanliness below that of 1st class (ГОСТ 2789-59), - (GOST 2789-59). A three-dimensional diagram of the relationship between the area of the surface being machined, average current required and resulting speed of metal removal is given. In the case of soft metals the resulting surface cleanliness is of the 4th class, the output being lowered to 6 - 8 mm3/minute. The cleanliness of the 6 - 7 class is achieved with high frequency impulse generators with the speed of development of the surface 0.25 -

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2.5 mm/cm^2. The electrical energy consumption in the case of hard metals is 8 - 12 kwatt/hr per 1 kg. of removed metal. The application of arc impulses decreases the wear and tear of the metal electrodes instruments 5 - 20 times. Particularly effective is the electric impulse machining with a new highly durable electrode material, mark 33Г (И-9) [ЕЕС (И-9)] which lowers the wear of the instrument to a fraction of a percent. The high durability of the material EEG is caused by the self-renewal of electrode at the expense of carbon evolved during the pyrolysis of the liquid medium by arc impulses. At the moment, this method is used mainly in the repair of medium and large dies, press-forms, channels, shaping slots etc; machining of work-pieces made of heat-resistant and other special steels; machining of holes and canals in inaccessible places; extraction of broken instruments; correction of defects in hardened work-pieces. The labor is reduced 1.5 - 3 times and often more when compared to the mechanical machining. New technology of manufacture of hard-alloy-work-pieces established in ЭНИМС, (ENIMS), and based

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on the combination of preliminary electric impulse machining with the subsequent grinding proved successful for the hard-alloy dies and draw plates. The machining is on the following mass-produced machines: an electric impulse type 4A722 and 473 and an ultrasound type 4772. The electric impulse method is suitable for making deep holes. The electrodes for this purpose are mush-room shaped. The speed amounts to 1 - 3 mm/minute. Several features of four important machines are given tabulated form. The machines 4B721, 4A722 and 473 have been mass-produced since 1960 at the Troitskiy Stankostroi tel'nyy Zavod (Machine Con-struction Plant). Other electric impulse machines are being developed. The impulse generators МГИ-2М, - (MGI - 2M) and МГИ -3М, - (MGI - 3M), designed by ХПИ - (KhPI) and ЭНИМС - (ENIMS), replace the existing МГИ -2, - (MGI - 2) and МГИ- 3 - (MGI - 3). The new generators reduce the power consumption by 25% and pro-vide higher current. The increase of cleanliness of surface from 3 - 4th class, obtainable with the use of generators work-ing at a frequency of 400 impulses/sec. to 6 - 7th class is

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achieved by applying high frequency generators type ВГ- 36, (VG - 3B) which are capable of supplying 35 A (mean current). They reduce labor 2 - 3 times when compared to electric spark method of machining. The high output of VG - 3B makes it applicable to clean machining surfaces of 100 cm^2 or more. There are 3 figures and 1 table.

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AYZENSHTADT, L.A.; PEN'KOV, P.M.; GLADKOV, B.A.; LYKHT, 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;MECHETNER, 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)

LIVSHITS, A.L., kand.tekhn.nauk (Moskva); MECHETNER, B.Kh., inzh. (Moskva)

Three-dimensional working of materials by electroerosion and ultrasonic waves. Fiz.v shkole 22 no.1:4-19 Ja-F '62. (MIRA 15:3)

(Electric metal cutting) (Ultrasonic waves--Industrial application)

BARG, Ya.A., kand. tekhn. nauk; LIVSHITS, A.L., inzh.

Calculation of the torsional stresses of the shafts of electrical machines. Vest. elektroprom. 34 no.3:60-63 Mr '63. (MIRA 16:8)

(Electric machinery)

BANG, Ya.A., kand.tekhn.nauk; LIVSHITS, A.L., inzh.

Method for calculating the torque strength of hollow shafts.
Elektrotekhnika 35 no.3:58-60 Mr '64. (MIRA 17:5)

BARG, Ya.A., kand.tekhn.nauk; LIVSHITS, A.L., inzh.

Calculation of the strength of the hollow conductor of the rotor of a large turbogenerator. Elektrotekhnika 35 no.4:56-57 Ap '64. (MIRA 17:4)

BERG,A.I.,glav.red.; TRAPEZNIKOV,V.A.,glav.red.; TSYPKIN, Ya.Z., doktor tekhn.nauk,prof.,red.; VORONOV,A.A., doktor tekhn.nauk,prof.,red.; SOTSKOV,B.S., doktor tekhn.nauk,red.; AGEYKIN,D.I., doktor tekhn. nauk, red.; GAVRILOV,M.A., red.; VENIKOV,V.A., doktor tekhn.nauk, prof.,red.; CHELYUSTKIN,A.B., doktor tekhn. nauk,red.; PROKOF'YEV, V.N., doktor tekhn.nauk,prof.,red.; IL'IN,V.A., doktor tekhn.nauk, prof.,red.; KITOV,A.I.,doktor tekhn.nauk,red.; KRINITSKIY, N.A., kand. fiz.-matem.nauk,red.; KOGAN,B.Ya., doktor tekhn.nauk, red.; USHAKOV,V.B., doktor tekhn.nauk,red.; LERNER,Yu.A., doktor tekhn. nauk,prof., red.; FEL'DBAUM, A.A.,prof., doktor tekhn.nauk,red.; SHREYDER,Yu.A., kand. fiz.-mat. nauk,dots.,red.; KHARKEVICH,A.A., akad., red.;TIMOFEYEV,P.V., red.; MASLOV,A.A.,dots.,red.; LEVIN, G.A., prof.,red.; LOZINSKIY,M.G., doktor tekhn.nauk,red.; NETUSHIL, A.V., doktor tekhn.nauk,prof.,red.; POPKOV,V.I.,red.; ROZENBERG, L.D.,doktor tekhn.nauk,prof.,red.; LIVSHITS,A.L.,kand.tekhn.nauk,red.

[Automation of production and industrial electronics] Avtomatizatsiia proizvodstva i promyshlennaia elektronika; entsiklopediia sovremennoi tekhniki. Moskva, Sovetskaia Entsiklopediia. Vol.3. Pogreshnost' resheniia - Teleizmeritel'naia sistema chastotnaia. 1964. 487 p. (MIRA 17:10)

1. Chlen-korrespondent AN SSSR (for Sotskov, Gavrilov, Timofeyev, Popkov).

BARG, Ya.A., kand. tekhn. nauk (Khar'kov); LIVSHITS, A.L., inzh. (Khar'kov)

Approximate analytical method for solving the Laplace equation.
Elektrichestvo no.8:88-89 Ag '64.
(MIRA 17:11)

ALEKSEYEVA, G.Ye., kand. tekhn. nauk, dots.; MELESHKINA, L.P., dots., kand. tekhn. nauk; BALUYEV, V.K., inzh.; BAMDAS, A.M., prof., doktor tekhn. nauk; VENIKOV, V.A., prof., doktor tekhn. nauk; YEZHKOV, V.V., kand. tekhn. nauk; ANISIMOVA, N.D., dots., kand. tekhn. nauk; GANTMAN, S.A., kand. khim. nauk; GLAZUNOV, A.A., dots., kand. tekhn. nauk; GOGUA, L.K., inzh.; GREBENNICHENKO, V.T., inzh.; GRUDINSKIY, P.G., prof.; GORFINKEL', Ya.M., inzh.; ZVEZDIN, A.L., inzh.; KAZANOVICH, G.Ya., inzh.; KNYAZEVSKIY, B.A., dots., kand. tekhn. nauk; KOSAREV, G.V., dots., kand. tekhn. nauk; MESSERMAN, S.M., kand. tekhn. nauk, dots.; KOKHAN, N.D., inzh.; KUVAYEVA, A.P., dots., kand. tekhn.nauk; SOKOLOV, M.M., dots., kand. tekhn. nauk; LASHKOV, F.P., dots., kand. tekhn. nauk; LAZIN, A.I., inzh.; YUDIN, F.I., inzh.; LIVSHITS, A.L., kand. tekhn. nauk; METEL'TSIN, P.G., inzh.; NEKRASOVA, N.M., dots., kand. tekhn. nauk; OL'SHANSKIY, N.A., dots., kand. tekhn. nauk; POLEVAYA, I.V., dots., kand. tekhn. nauk; POLEVOY, V.A., dots., kand. tekhn. nauk [deceased]; RAZEVIG, D.V., prof., doktor tekhn. nauk; RAKOVICH, I.I., inzh.; SOLDATKINA, L.A., dots., kand. tekhn. nauk; TREMBACH, V.V., dots., kand. tekhn. nauk; FEDOROV, A.A., prof., kand. tekhn. nauk; FINGER, L.M., inzh.; CHILIKIN, M.G., prof., doktor tekhn. nauk, glav. red.; ANTIK, I.V., inzh., red. GOLOVAN,A.T., prof.,red.; PETROV, G.N., prof., red.; FEDOSEYEV, A.M., prof., red.

(Continued on next card)

ALEKSEYEVA, G.Ye.— (continued). Card 2.

[Electrical engineering manual] Elektrotekhnicheskii spravochnik. Pod obshchei red. A.T. Golovana i dr. Moskva, Energiia. Vol.2. 1964. 758 p. (MIRA 17:12)

1. Moscow. Energeticheskiy institut. 2. Moskovskiy energeticheskiy institut (for Golovan, Grudinskiy, Petrov, Fedoseyev, Chilikin, Venikov). 3. Chlen-korrespondent AN SSR (for Petrov).

BARG, Yakov Abramovich, kand.tekhn.nauk; LIVSHITS, Aleksandr Lazarevich, inzh. konstruktor

Theory of the calculation of electrostatic fields. Izv.vys.ucheb. zav.; elektromekh. 7 no.12:1405-1409 '64.

(MIRA 18:2)

1. Nachal'nik sektora "VNIIGidroprivoda" (for Barg). 2. Zavod Nauchno-issledovatel'skogo instituta tyazhelogo elektrostroyeniya (for Livshits).

L 51488-65 EWT(d)/EWT(m)/EWP(w) EM

ACCESSION NR: AP5016617 UR/0122/64/000/012/0009/0013

AUTHOR: Barg, Ya. A. (Candidate of technical sciences); Livshits, A. L. (Engineer); Sirenko, V. A. (Engineer)

TITLE: Torsion calculation for prismatic shafts of arbitrary cross section

SOURCE: Vestnik mashinostroyeniya, no. 12, 1964, 9-13

TOPIC TAGS: computer calculation, shaft

Abstract: A further development of the method proposed by two of the authors (Barg, Ya. A., Livshits, A. L., "Torsion Calculations for Shafts of Electrical Machines," Vestnik Elektropromyshlennosti, No 3, 1963) on calculating shafts for torsion. The calculation of shafts with rhombic and other cross sections used in machine building (boring bars, telescopic transmissions, etc.) is done on the "Ural-2" electronic digital computer. The torsion calculation for a shaft with a simple connected cross section (i. e. one without internal cavities) consists of finding the stress function $F(x,y)$ which satisfies the Poisson equation

$$\frac{\partial^2 F}{\partial x^2} + \frac{\partial^2 F}{\partial y^2} = -2,$$

Card 1/2

L 51486-65
ACCESSION NR: AP5016617

and the boundary condition (for the contour) $F(x,y) = 0$.
Orig. art. has 3 figures, 17 formulas, and 3 tables.

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IE, DP

NO REF SOV: 000 OTHER: 000 JPRS

Card 2/2

LIVSHITS, A.L., kand. tekhn. nauk

New physical and chemical methods of dimensional working of materials. Mashinostroitel' no.6:11-17 Je '65. (MIRA 18:7)

BARG, M.A., inzh.; BARG, Ya.A., kand. tekhn. nauk; LIVSHITS, A.L., kand. tekhn. nauk

Method for calculating the flexure of shafts. Elektrotekhnika 36 no.4:54-55 Ap '65. (MIRA 18:5)

BARG, Ya.A., kand. tekhn. nauk; LIVSHITS, A.L., kand. tekhn. nauk; MASHKIN, V.A., inzh.

Method for calculating the torsion of shafts with varying cross section. Elektrotekhnika. 36 no.9:58-59 S '65.
(MIRA 18:9)

ACC NR: AP7001453 (N) SOURCE CODE: UR/0413/66/000/021/0195/0195

INVENTORS: Livshits, A. L.; Moroz, I. I.; Alekseyev, G. A.; Yakobson, G. M.; Kuznetsov, B. V.

ORG: none

TITLE: A method for electrochemical working of external surfaces of large details. Class 48, No. 188251 [announced by Experimental Scientific Research Institute of Metal Cutting Machines (Eksperimental'nyy nauchno-issledovatel'skiy institut metallorezhushchikh stankov)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 21, 1966, 195

TOPIC TAGS: metalworking, metalworking machinery, metal electroforming, electrode

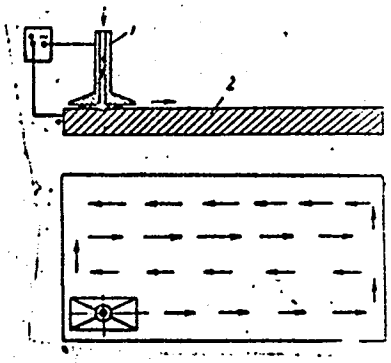
ABSTRACT: This Author Certificate presents a method for working external surfaces of large details by using a source of pulsed direct current. To apply a small power current source, the treatment is carried out by an electrode-tool moving along the external surface of the detail (see Fig. 1). The working surface of this tool is considerably smaller than the worked surface of the detail.

Card 1/2

UDC: 621.9.047.7

ACC NR: AP7001453

Fig. 1. 1 - electrode-tool; 2 - detail



Orig. art. has: 1 figure.

SUB CODE: 13/ SUBM DATE: 27Nov64

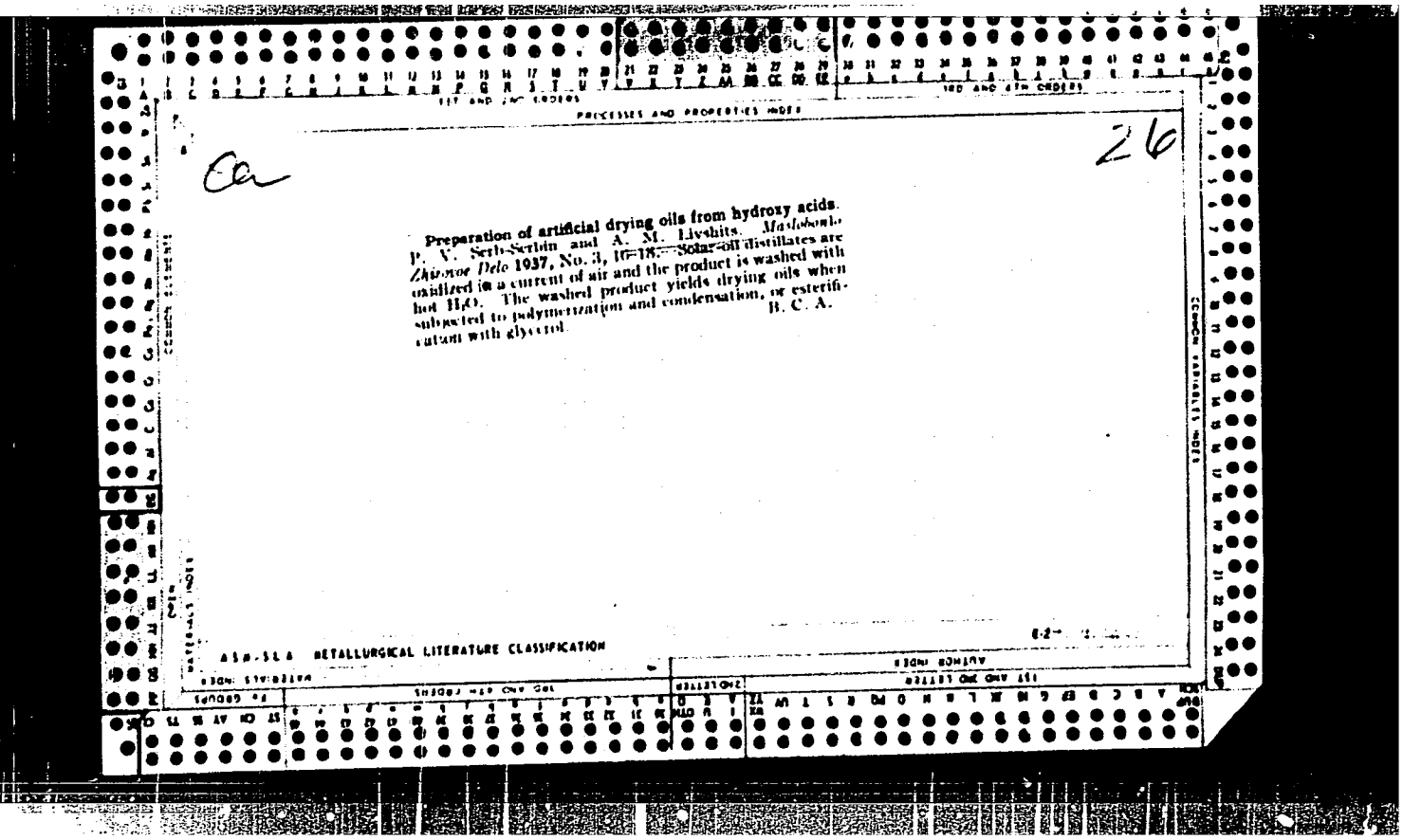
Card 2/2

PROCESSES AND PROPERTIES INDEX

B-2-7

Dolphin oil. P. V. [illegible] and A. M. [illegible] (Maslob. Zhir. Delo, 1937, No. 1, 26).—Mixtures (1:1) of dolphin and linseed oils have good drying properties with a Co drier. Dolphin oil alone does not yield films under any conditions. R. T.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

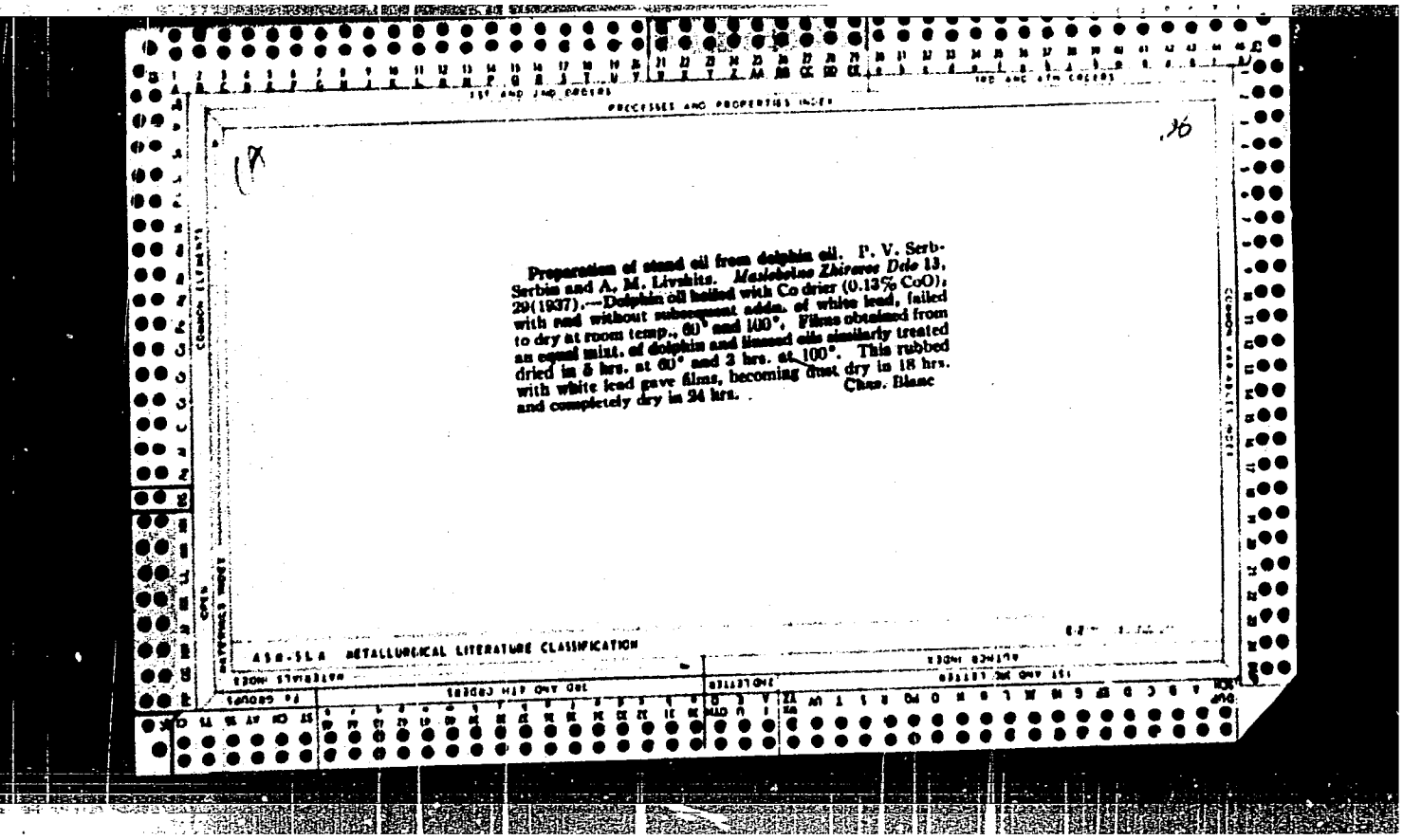


Ca

26

Preparation of artificial drying oils from hydroxy acids. P. V. Serb-Serbin and A. M. Liyshits. *Maslobouln. Zhirovoe Delo* 1937, No. 3, 16–18.—Solar-oil distillates are oxidized in a current of air and the product is washed with hot H_2O. The washed product yields drying oils when subjected to polymerization and condensation, or esterification with glycerol. B. C. A.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Preparation of stand oil from dolphin oil. P. V. Serbin and A. M. Livshits. *Maslobolno Zhirovoe Delo* 13, 29(1937).—Dolphin oil boiled with Co drier (0.13% CoO), with and without subsequent addn. of white lead, failed to dry at room temp., 60° and 100°. Films obtained from an equal mixt. of dolphin and linseed oils similarly treated dried in 5 hrs. at 60° and 2 hrs. at 100°. This rubbed with white lead gave films, becoming dust dry in 18 hrs. and completely dry in 24 hrs. Chas. Blanc

LIVSHITS, A. M.

15-57-1-983

Translation from: Referativnyy zhurnal, Geologiya, 1957, Nr 1, p 156 (USSR)

AUTHORS: Livshits, A. M., Bogatikov, A. V.

TITLE: Determining the Dip Angle of an Ore Body by Using the Data Obtained by the Method of Field Superimposition (Opredeleniye ugla naklona rudnogo tela po rezul'tatam metoda nalozheniya poley)

PERIODICAL: Nauch. raboty stud. Sverdl. gorn. in-ta, 1956, Nr 2, pp 54-60

ABSTRACT: Bibliographic entry

Card 1/1

LUKOSHKINA, L.A., kand. tekhn. nauk; MAKOTINSKIY, M.P., kand. arkh.; MIKHAYLEVSKIY, P.A., inzh.; TSILLI, L.B., kand. arkh.; SHPANOV, I.A., arkh.; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; GALAKTIONOV, A.A., kand. tekhn. nauk; LIVSHITS, A.M., inzh.; ZHUKOV, K.V., kand. arkh., retsenzent; SOKOLOV, P.N., prof., retsenzent; GURVICH, E.A., red. izd-va; TEMKINA, Ye.L., tekhn. red.

[Catalog of finishing materials and products]Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.4.[Asbestos cement]Asbestotsement. 1961. 36 p. (MIRA 15:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Nauchno-issledovatel'skiy institut slyudy, asbestotsementnykh izdeliy i proyektirovaniya stroitel'stva predpriyatiy slyudianoy promyshlennosti (for Lukoshkina, Mikhaylevskiy).

(Asbestos cement)

BRIK, F.G., inzh.; YEFREMOVA, Ye.M.; LOPOVOK, L.I., kand. arkh.; MAKOTINSKIY, M.P., kand. arkh.; MILOVZOROV, A.K., arkh.; CHARNYY, S.S., kand. tekhn. nauk; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; LIVSHITS, A.M., inzh.; POPOV, A.N., retsenzent; ROKHVARGER, Ye.L., kand. tekhn. nauk, retsenzent; GURVICH, E.A., red.

[Catalog of finishing materials and elements] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.5. [Ceramics] Keramika. 1961. 54 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Popov).
(Finishes and finishing)

KARASEV, K.I., kand. khim.nauk; MAKOTINSKIY, M.P., kand. arkh.; TROSHICHEV, V.M.; Prinimali uchastiye: LUTSIK, L.D., inzh.; FEDOROVA, G.M., tekhnik; LIVSHITS, A.M., inzh.; ANDREYEV, V.S., retsenzent; MIRENSKIY, B.R., inzh., retsenzent; GURVICH, E.A., red.izd-va; TEMKINA, Ye.L., tekhn. red.

[Catalog of finishing materials and products] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.2. [Paints and lacquers] Kraski i laki. 1961. 76 p. (MIRA 16:7)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR (for Andreyev).
(Paint materials—Catalogs)

KRESTOV, M.A., kand. arkh.; MAKOTINSKIY, M.P., kand. arkh.; TSILLI, L.B., kand. arkh.; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; DOBRYAKOVA, L.I., kand. tekhn. nauk; LIVSHITS, A.M., inzh.; MUNTS, V.O., kand. arkh.; L'VOV, G.N., inzh., retsenzent; POPOV, A.N., retsenzent; GURVICH, E.A., red.izd-va; TEMKINA, Ye.L., tekhn. red.

[Catalog of finishing materials and elements] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.6.[Concrete and mortars] Betony i rastvory. 1962. 46 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Deystvitel'nyy chlen Akademii stroitel'stva i arkhitektury SSSR (for Popov).
(Finishes and finishing)

KOSHKIN, V.G., kand. tekhn.nauk; MAKOTINSKIY, M.P., kand. arkh.; MUNTS, V.O., kand. arkh.; RUDINA, M.A., arkh.; SILUANOVA, G.V., arkh.; SHORYGINA, N.V., kand. khim. nauk; Priminali uchastiye: BOGUSLAVSKIY, A.I., inzh.; ZARUBITSKIY, A.Ye., inzh.; LIVSHITS, A.M., inzh.; MASHINA, N.N., inzh.; OTLIVANCHIK, A.N., kand. tekhn. nauk; ROMANOVA, L.A., inzh.; CHERKINSKIY, Yu.S., inzh.; ANDREYEV, V.S., retsenzent; IOFAN, B.M., retsenzent; KRIPPA, A.I., arkh., retsenzent; GURVICH, E.A., red.izd-va; BRUSINA, L.N., tekhn. red.

[Catalog of finishing materials and products] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.1.[Plastics; polymer finishing materials] Plastmassy; polimernye otdelochnye materialy. 1962. 119 p. (MIRA 16:4)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Chleny-korrespondenty Akademii stroitel'stva i arkhitektury SSSR (for Andreyev, Iofan, Krippa).
(Plastics) (Building--Details)

KOSHKIN, V.G., kand. tekhn. nauk; MAKOTINSKIY, M.P., kand. arkh.; MUNTS, V.O., kand. arkh.; RUDINA, M.A., arkh.; SILUANOVA, G.V., arkh.; SHORYGINA, N.V., kand. khim. nauk. Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; ZARUBITSKIY, A.Ye., inzh.; LIVSHITS, A.M., inzh.; MASHINA, N.N., inzh.; OTLIVANCHIK, A.N., kand. tekhn. nauk; ROMANOVA, L.A., inzh.; CHERKINSKIY, Yu.S., inzh.; ANDREYEV, V.S., retsenzent; IOFAN, B.M., retsenzent; KRIPPA, A.I., arkh., retsenzent; GURVICH, E.A., red.izd-va; BRUSINA, L.N., tekhn. red.

[Catalog of finishing materials and articles] Katalog otdelochnykh materialov i izdelii. Pod red. M.P.Makotinskogo. Moskva, Gosstroiizdat. Pt.1.[Plastics; polymer finishing materials and articles] Plastmassy; polimernye otdelochnye materialy i izdeliia. 1962. 119 p. (MIRA 16:4)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov. 2. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR (for Andreyev, Iofan, Krippa).
(Finishes and finishing--Catalogs) (Plastics)

LOSKUTOVA, L.T.; MAKOTINSKIY, M.P., kand. arkh.; RUDINA, M.A., arkh.; SHPANOV, I.A., arkh. Prinimal uchastiye LIVSHITS, A.M., inzh.; GROMOV, V.L., kand. tekhn. nauk, retsenzeng; KRASNOVSKIY, N.V., kand. tekhn. nauk, retsenzent; PAVLOV, V.P., kand. tekhn. nauk, retsenzent; PODZOROVA, N.G., inzh., retsenzent; FOLOMIN, A.I., doktor tekhn. nauk, retsenzent; GURVICH, E.A., red.

[Catalog of finishing materials and elements] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.[illegible] [Wood and paper] Derevo i bumaga. 1962. 56 p. (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh stroitel'nykh materialov.

(Finishes and finishing)

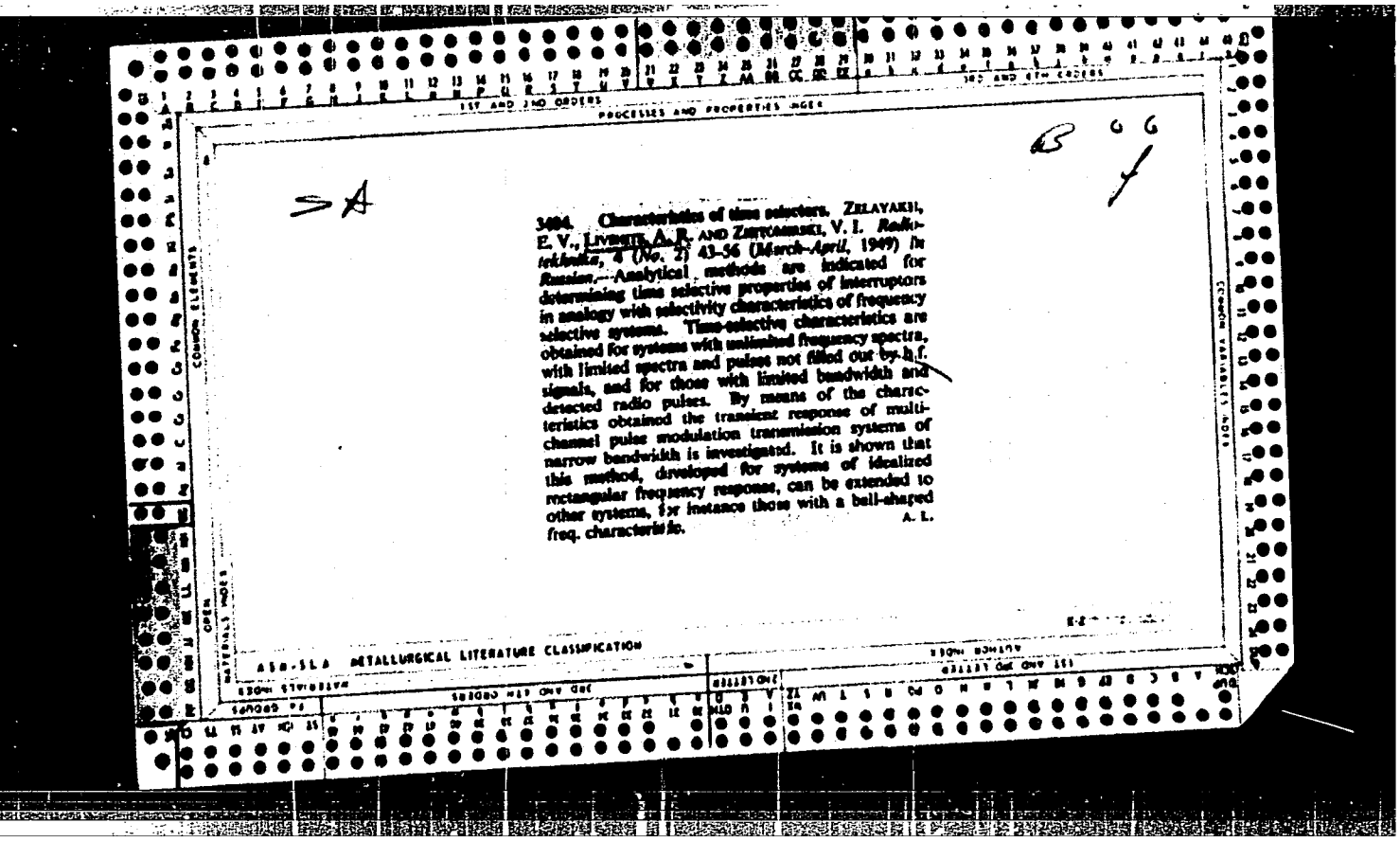
ALEKSEYEV, V.N., arkh.; KONSTANTINOVA, M.A., arkh.; LOPOVOK, L.I., kand. arkh.; MAKOTINSKIY, M.P., kand. arkh.; Prinimali uchastiye: BOGUSLAVSKIY, A.I., inzh.; LIVSHITS, A.M., inzh.; MASHINA, N.N., inzh.; ANDREYEV, V.S., retsenzent; BOTVINKIN, O.K., doktor khim. nauk, prof., retsenzent; POSOKHIN, M.V., retsenzent

[Catalog of finishing materials and products] Katalog otdelochnykh materialov i izdelii. Moskva, Gosstroiizdat. Pt.3. 1961. 60 p. (MIRA 18:4)

1. Moscow. Vsesoyuznyy nauchno-issledovatel'skiy institut novykh materialov. 2. Rukovoditel' Arkhitekturno-stroitel'nym sektorom Vsesoyuznogo nauchno-issledovatel'skogo instituta novykh stroitel'nykh materialov, Moskva (for Makotinskiy). 3. Rukovoditel' Sektorom tekhniko-ekonomicheskikh issledovaniy Vsesoyuznogo nauchno-issledovatel'skogo instituta novykh stroitel'nykh materialov, Moskva (for Boguslavskiy). 4. Chlen-korrespondent Akademii stroitel'stva i arkhitektury SSSR (for Andreyev, Posokhin).

LIVSHITS, A. R.

"Characteristics of Time Selectivity," Radiotekh., pp. 2-49, 1943



3484. Characteristics of time selectors. ZELAYAKH, E. V., LIVSHITS, A. R. AND ZHITOMIRSKI, V. I. *Radiotekhnika*, 4 (*No. 2*) 43-56 (*March-April*, 1949) *In Russian.*—Analytical methods are indicated for determining time selective properties of interruptors in analogy with selectivity characteristics of frequency selective systems. Time-selective characteristics are obtained for systems with unlimited frequency spectra, with limited spectra and pulses not filled out by h.f. signals, and for those with limited bandwidth and detected radio pulses. By means of the characteristics obtained the transient response of multi-channel pulse modulation transmission systems of narrow bandwidth is investigated. It is shown that this method, developed for systems of idealized rectangular frequency response, can be extended to other systems, for instance those with a bell-shaped freq. characteristic. A. L.

LIVSHITS, A-R.

elec (21)

1 pKL

Electrical Engineering Abst.
Vol. 57 No. 675
Mar. 1954
Electrical Engineering

621.314.25 : 621.372.8

188. [Frequency] band phase-shifting circuit. A. R. LIVSHITS AND A. N. ZASLAVSKII. *Elektrichestvo*, 1953, *No.* 10, 56–8. *In Russian.*

An analysis of a pass-band filter-type circuit capable of producing two voltages displaced from one another by 90° and such that $|U_1| = |U_2| = \text{const.}$ within a certain frequency band; the bandwidth depends on the imposed tolerance for the condition of the equality of the voltages. The results of the analysis give relations between various circuit parameters and are presented in the form of curves which are useful in the design of the circuit.

E. M. DEMBINSKI

5/14/54

AYZINOV, Mark Moiseyevich; LIVSHITS,A.R., redaktor; PETERSON,M.M., tekhnicheskiy redaktor

[Transient processes in elements of radio apparatus] Perekhodnye protsessy v elementakh radioustroistv. Leningrad, Izd-vo "Morskoi transport," 1955. 491 p. (MLRA 9:2)
(Radio circuits)

LIVSHITS, A.R.

USSR/Electronics - Circuits

FD-2543

Card 1/1 Pub. 90 - 8/12

Author : Al'terman, Ya. L., and Livshits, A. R.

Title : Expansion of the Band of Frequencies Passed by an Input Transformer

Periodical : Radiotekhnika, 10, 60-68, May 55

Abstract : Some possibilities for broadening the band of frequencies passed by an input transformer with cathode load in the region of higher operating frequencies are examined. A calculation procedure based on selection of the optimum value of stray inductance is proposed. Using this procedure, the pass band can be increased to as much as 1.7 to 2 times the width obtainable if the stray inductance is not optimized. Graphs, diagrams. Two references: 1 USSR.

Institution :

Submitted : April 5, 1954

LIVSHITS, A.R.

109-8-1/17

AUTHOR: Livshits, A.R.

TITLE: The Probability of n-ple Coincidence (O veroyatnosti n-sovpadeniya)

PERIODICAL: Radiotekhnika i Elektronika, 1957, Vol.II, No.8, pp. 947 - 950 (USSR).

ABSTRACT: The problem of n-ple coincidence in random processes is of importance in the investigation of certain physical phenomena, such as cosmic rays in an asynchronous multi-channel communication system, etc. This problem is dealt with in the following: it is assumed that a train of pulses has an average number z of pulses per second, whose instances of appearance are distributed according to the Poisson law. The probability that the instance of appearance of a pulse lies in a certain interval of time τ is equal to $p = 1 - e^{-z\tau}$, but if $z\tau \ll 1$, then $p = z\tau$. For this case, the probability of a double coincidence ($n = 2$) is equal to:

$$p = z\tau = 2z\tau_u$$

where τ_u is the length of a pulse. In the case of an arbitrary n, the probability can be expressed by:

Card 1/2

6(7)

SOV/112-59-1-2100

Translation from: Referativnyy zhurnal. Elektrotekhnika, 1959, Nr 1 pp 303-304 (USSR)

AUTHOR: Livshits, A. R.

TITLE: Minimum Possible Value of the Power-Coil Inductance of a Broad-Band Wave Trap

PERIODICAL: Sb. tr. Leningr. elektrotekhn. in-ta svyazi, 1957, Nr 3(33), pp 48-50

ABSTRACT: The minimum possible value of the inductance L_{pr} of the power coil of a broad-band wave trap intended for carrier communications over electric transmission lines is considered. The problem is solved in a general form, on the basis of the modern electric-circuit theory. A comparison between L_{pr} and the inductance L_s of the trap was previously cited (see Avtomatika i telemekhanika, 1940, Nr 5); the difference between L_{pr} and L_s is negligible. $L_{pr}/L_s = 1.57$. Bibliography: 2 items.

A.M.G.

Card 1/1

AUTHORS: Livshits, A.R. and Finozhenkov, F.A. SOV/106-59-7-10/16

TITLE: The Effeciency of Filters Working Between Complex Impedances in the Stopband

PERIODICAL: Elektrosvyaz', 1959, Nr 7, pp 66 - 71 (USSR)

ABSTRACT: In a number of practical applications, the impedances between which filters operate are not constant pure resistances at frequencies outside the passband of the filter. This can reduce the attenuation offered by the filter to these frequencies. The article analyses the operation of a filter under these conditions, evaluates its efficiency and considers some methods of improving its attenuation.
A circuit in which a generator with an internal resistance Z_i supplies a load of impedance Z_H (Figure 1) is considered first. The power dissipated in the load will vary with frequency, since it depends on the ratio between the impedances. When a filter is connected between the generator and the load (Figure 2), its effect can be conveniently expressed by the additional attenuation offered to frequencies in the stop-band;

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$$b_{BH} = \ln \frac{I_o}{I_2} \qquad (1) .$$

This formula for the insertion attenuation is developed (Eq 2) in terms of:

b - the attenuation of the filter itself;
g - the characteristic transfer coefficient of the filter;
Z_{c1} and Z_{c2} - the characteristic impedances of the filter;
Z_i and Z_H - the impedances of the generator and of the load.

If only symmetrical filters are considered, Eq (2) can be simplified to:

$$b_{BH} = b - 0.69 + \ln \left| 1 + e^{-2g} + \left(1-e^{-2g}\right) \frac{Z_c^2 + Z_i Z_H}{Z_c (Z_i + Z_H)} \right| \qquad (3)$$

The Efficiency of Filters Working Between Complex Impedances in the Stopband

The author first considers the case when resonance occurs with purely reactive impedances Z_i and Z_c and no losses in the filter. In this case, instead of attenuation, there is a gain which is greater, the greater the filter attenuation. This result is, however, of purely theoretical interest, because at resonance, it is not permissible to neglect the filter element losses.
Taking the filter losses at resonance into account and also considering the attenuation at non-resonant frequencies, where the losses can be neglected, Eq (3) can be simplified to Eq (5) since e^{-2g} in the stopband is small compared with unity. The resonance case, taking the losses in the elements of a low-frequency filter into account, is now considered. Assuming $d_L >> d_C$, where d_L and d_C are the loss factors of the inductance coils and of the condensers, respectively, then (a) for a T-filter:

The Efficiency of Filters Working Between Complex Impedances in the Stopband

$$Z_c = \frac{R_o d_L}{2} \frac{2\eta^2 - 1}{\sqrt{\eta^2 - 1}} \pm iR_o \sqrt{\eta^2 - 1} \qquad (6)$$

and (b) for a Π-filter:

$$Z_c = \frac{R_o d_L}{2} \frac{1}{(\eta^2 - 1)^{3/2}} - i \frac{R_o}{\sqrt{\eta^2 - 1}} \qquad (7) .$$

In these equations, $R_o = \sqrt{L/C}$ is the nominal characteristic impedance of the filter and $\eta = f/f_c$ is the normalised frequency. At the resonance frequency, assuming the load impedance purely reactive and equal to $Z_H = -iX_C$ and Z_i purely resistive and matched to the nominal characteristic impedance of the filter, i.e. $Z_i = R_o$,

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then from Eq (5), Eq (8) is obtained. Considering $R_c \ll X_c$, the approximate equation is obtained:

$$b_{BH} = b - 0.69 - \ln \frac{X_c}{R_c} \qquad (9) .$$

A similar result is obtained when the load is matched to the nominal characteristic impedance and resonance occurs at the generator end.
With resonance conditions at both ends:

$$b_{BH} = b - 1.38 - 2 \ln \frac{X_c}{R_c} \qquad (10) .$$

Considering single-ended resonance for a T-filter, then from Eqs (6) and (7), Eq (11) is obtained; introducing the notation $Q = 1/d_L$ and assuming that $\eta^2 \gg 1$, then:

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The Efficiency of Filters Working Between Complex Impedances in the Stopband

$$b_{BH} \approx b - 0.69 - \ln Q \qquad (12) .$$

For a Γ-filter:

$$b_{BH} \approx b - 0.69 - \ln 2Q\eta^2 \qquad (13) .$$

For two-ended resonance (a) for a T-filter:

$$b_{BH} = b - 1.38 - 2 \ln Q \qquad (14)$$

and (b) for a Γ-filter:

$$b_{BH} = b - 1.38 - 2 \ln 2Q\eta^2 \qquad (15) .$$

Comparison of the equations obtained for T- and Γ-filters shows the advantages of the T-filter from the point of view of filter attenuation under resonance conditions.

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The Efficiency of Filters Working Between Complex Impedances in the Stopband

To calculate the insertion attenuation for different ratios of filter impedance and purely reactive generator and load impedances, Eq (5) can be put into the form:

$$b_{BH} = b - 0.69 + \ln\left|1 + \frac{1 + mp}{m + p}\right| \qquad (16)$$

where $p = X_H/X_c$ and $m = X_1/X_c$.

Eq (16) shows that the filter attenuation is reduced when

$$-1 \leqslant \frac{(1 + m)(1 + p)}{2(m + p)} \leqslant +1 \qquad (17) .$$

The shaded area in graph of Figure 3 drawn in p and m coordinates represents the region in which the insertion attenuation is reduced when the generator and load impedances are reactive.

Card7/8 The author next considers methods of improving the

The Efficiency of Filters Working Between Complex Impedances in the Stopband

effectiveness of filters working between complex impedances. Several methods are possible:

1) Selection of the filter-terminating circuits to match the characteristic impedance of the load or generator;
2) Switching in extra resistive impedances at the filter input and output;
3) By combination of high- and low-frequency filters.

As an example, graphs of the insertion attenuation of a two-section T-form, low-frequency filter, working between a resistance at one end and a purely capacitive impedance at the other, are shown in Figure 5. Curve 1 is the curve for a normal filter and Curve 2 is for a filter circuit modified as shown in Figure 4. There are 5 figures and 2 Soviet references.

SUBMITTED: June 11, 1958

Card 8/8

67382

9.3230 SOV/106-59-9-11/13

AUTHOR: Livshits, A.R.

TITLE: Determination of the Length of a Pulse Which Passes through a Path Having a Bell-shaped Frequency Characteristic. (Short Communication)

PERIODICAL: Elektrosvyaz', 1959, Nr 9, pp 77-78 (USSR)

ABSTRACT: When a pulse passes through a receiver path having finite pass-band its shape is changed, and if there is limiting at the output of the receiver, the pulse acquires a certain pulse length. This pulse length will change with change of pulse amplitude at the receiver input. If the frequency characteristic of the channel is rectangular, then the pulse at the output of the system is accompanied by decay oscillations which with low value of limiting may give rise to the appearance of several pulses. A system with a bell-shaped frequency characteristic does not give this effect and is generally advantageous. A rectangular pulse passing through a system with a bell-shaped frequency characteristic is described mathematically by Eq (1) where E is the pulse amplitude and $\Phi(x)$ is determined by:

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Determination of the Length of a Pulse Which Passes Through a Path Having a Bell-shaped Frequency Characteristic

$$\Phi(x) = \frac{2}{\sqrt{\pi}} \int_0^x e^{-x^2} dx:$$

$$\beta = \frac{\Delta f \tau_o}{2}, \qquad t_o = t/\tau_o$$

τ_o is the length of the pulse at the input to the system. Δf is the integral of the pass-band width given by

$$\Delta f = \frac{\int_0^\infty |h(\omega)|^2 d\omega}{2\pi |h(0)|^2},$$

where $h(\omega)$ is the frequency characteristic of the system. $\Phi(x)$ is expanded into a series but only the first two terms are considered (the accuracy is evaluated from the final results). It is shown that the duration of the pulse at the output of the system will equal

$$\tau_{11} = 2t_o \tau_o = \frac{4\xi}{\Delta f \tau_o} \tau_o + \tau_o = \tau_o + \frac{4\xi}{\Delta f} \qquad (6)$$

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Determination of the Length of a Pulse Which Passes Through a Path Having a Bell-shaped Frequency Characteristic

where ξ is the relative threshold of the limiter. Thus the length of the pulse at the output of the system can be considered as consisting of two components: the initial length of the pulse at the input to the system and the increase in length

$$\Delta\tau = \frac{4\xi}{\Delta f^2} \qquad (7)$$

which depends upon the relative threshold of the limiter and on the bandwidth. The results of calculations using these formulae are shown in Fig 2.

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There are 2 figures and 1 table.

SUBMITTED: December 16, 1958

L 10241-63 EWT(d)/EWT(1)/BDS/EEC-2--
AFFTC/ASD--Pi-4 S/0109/63/008/006/0930/0937
ACCESSION NR: AP3000988

AUTHOR: Livshits, A. R.

TITLE: Effect of a number of regular pulse trains on a decoding system with a delay line and a coincidence stage

SOURCE: Radiotekhnika i elektronika, v. 8, no. 6, 1963, 930-937

TOPIC TAGS: asynchronous multiplexing, pulse decoding system

ABSTRACT: Average number of coincidence pulses per unit time, coincidence-pulse duration, and duty factor can be defined in the same way, no matter whether the pulse trains are random or regular. General formulas covering the above cases serve as a basis for deriving the particular formulas that describe the effect of N interfering regular pulse trains on a decoding system; the latter has a delay line and a coincidence stage. In practice, such a problem arises in multichannel systems of information transmission with code channel separation (asynchronous multiplexing). "In conclusion the author considers it his pleasant duty to express his appreciation to B. R. Levin for valuable advice." Orig. art. has: 30 formulas, 2 figures, and 1 table.

ASSOCIATION: none
SUBMITTED: 26Dec62 DATE ACQD: 01Jul63 ENCL: 00
SUB CODE: 00 NO REF SOV: 005 OTHER: 005
Card 1/1

L 24929-65 EEC-4/EED-2/EEO-2/ENT(d)/ENT(1) Pab
ACCESSION NR: AP4045477 S/0109/64/009/009/1566/1571

AUTHOR: Livshits, A. R.

TITLE: Coincidence of pulse sequences derived from one initial sequence by means of time delays

SOURCE: Radiotekhnika i elektronika, v. 9, no. 9, 1964, 1566-1571

TOPIC TAGS: signal noise reception, noise suppression, pulse reception

ABSTRACT: Two cases are considered: (1) The initial sequence consists of one random sequence and N regular, the time intervals between the pulses in regular sequences being unequal to the time delays; the simultaneous effect of regular interference signals and random noise, or of noise and desirable signals on a decoder is analyzed; (2) The initial sequence is subdivided into n identical groups, each differing from the others by its own "tag"; each delay circuit (including the zero-delay circuit) receives pulses after they have been grouped

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L 24929-65
ACCESSION NR: AP4045471

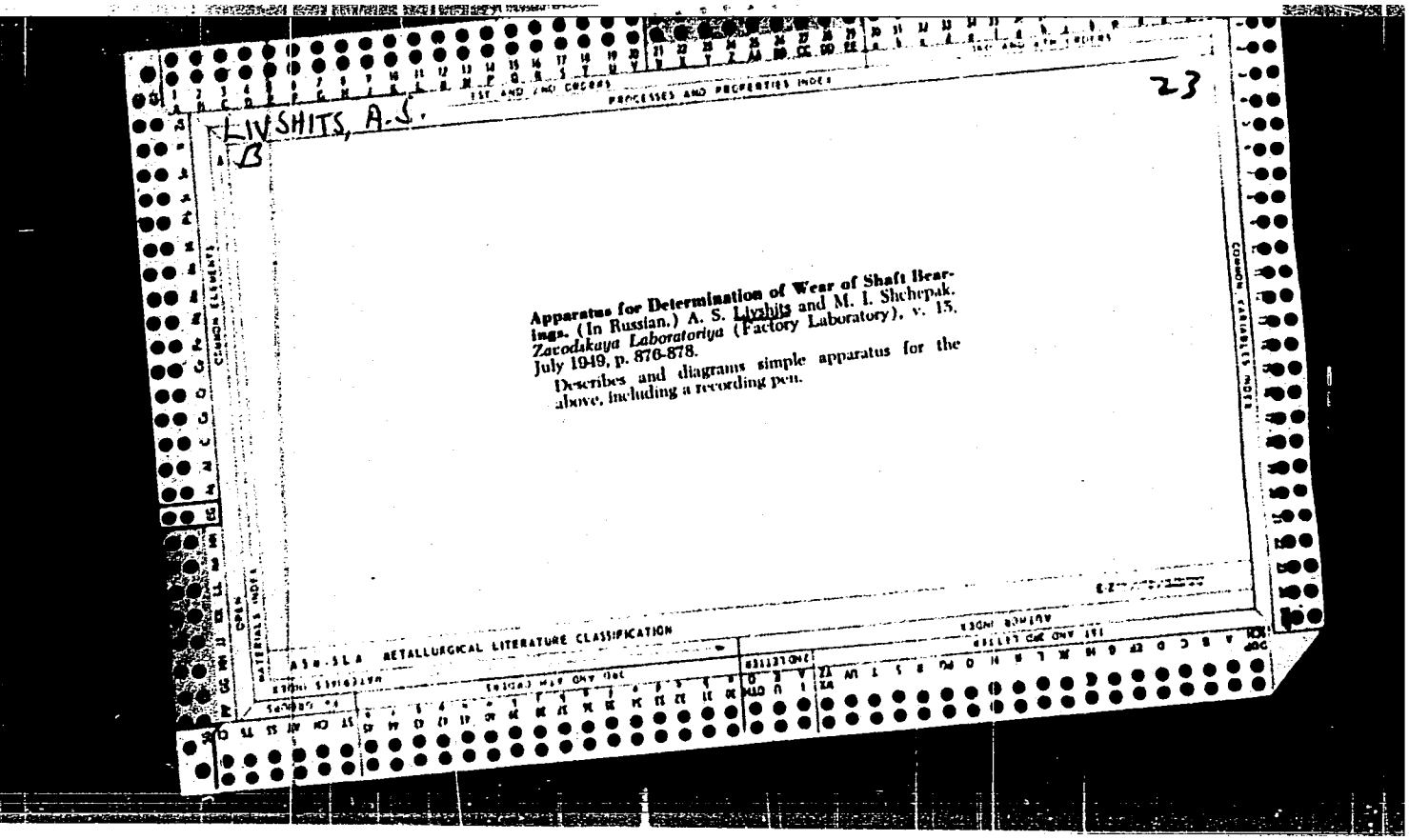
according to their "tags"; in a regular sequence, all n pulses constituting the period of the sequence have different "tags." Orig. art. has: 1 figure and 40 formulas.

ASSOCIATION: none

SUBMITTED: 13May63 ENCL: 00

SUB CODE: EC NO REF SOV: 002 OTHER: 000

Card 2/2



LIVSHITS, A.S.
B
23

Apparatus for Determination of Wear of Shaft Bearings. (In Russian.) A. S. Livshits and M. I. Shchepak. *Zavodskaya Laboratoriya* (Factory Laboratory), v. 15, July 1949, p. 876-878.

Describes and diagrams simple apparatus for the above, including a recording pen.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PLYATSKOVSKIY, O.A., kandidat tekhnicheskikh nauk; LIVSHITS, A.S., kandidat tekhnicheskikh nauk; SHCHERPAK, M.I., inzhener; LOZINSKIY, I.B., inzhener; KRYUKOV, I.I., inzhener.

Increasing the sturdiness of pilger mill rolls by means of weld seams. Vest. mash. 33 no.11:87-88 N '53. (MLRA 6:12)
(Rolling-mill machinery)

LIVSHITS, A.S.; ZARITSKIY, V.N.

Measuring the bead alignment of electrically welded pipes. Izm. tekh.no.5:74-75 S-O '56. (MLRA 10:2)
(Pipe, Steel--Welding)

PLYATSKOVSKIY, O.A., kand.tekhn.nauk; LIVSHITS, A.S., kand.tekhn.nauk;
Prinimali uchastiye: AGAYEV, Kh.A.; EL'BERT, S.M.; BRAYLOVSKIY, V.P.;
SYRKINA, A.F.; ORLOV, S.T.

Selection of wear resistant steels for mandrels of continuous and three-roll pipe mills. Biul.nauch.-tekh.inform.VNITI no.4/5:51-61 '58. (MIRA 15:1)

(Pipe mills)

LIVSHITS, A.V.

Determination of the elctric activity of the muscles of the anterior abdominal wall in acute appendicitis. Eksper. khir. i anest. no.1:31-36'63. (MIRA 16:10)

1. Iz Muromskoy zheleznodorozhnoy bol'nitsy (nachal'nik V.I.Presnyakov) Gor'kovskoy zheleznoy dorogi (nauchnyy rukovoditel' - prof. L.L.Shik).

(APPENDICITIS) (ELECTROPHYSIOLOGY)
(MUSCLES—EXAMINATION)

LIVSHITS, A.V.

Receptor field of reflex contractions of the anterior abdominal wall muscles in man. Biul. eksp. biol. i med. 57 no.4:24-26 Ap '64. (MIRA 18:3)

1. Muromskaya zheleznodorozhnaya bol'nitsa (nachal'nik V.I. Presnyakov) Gor'kovskoy zheleznoy dorogi. Submitted April 12, 1963.

LIVSHITS, A.Ya., inzh.

Cartridge filters in the perfume industry. Masl.-zhir.prom. 25 no.2:38-40 '59. (MIRA 12:2)

1. Moskovskaya fabrika "Novaya zarya."
(Perfumes) (Filters and filtration)

LYCHAGIN, Aleksey Sergeyevich; CHERNENKO, Mikhail Avksent'yevich; LIVSHITS, A.Ye., red.; VAGIN, A.A., red.izd-va; KLEYNMAN, M.R., tekhn.red.

[New developments in the construction of open-hearth furnaces] Razvitie konstruktsii martenovskikh pechei. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po chernoi i tsvetnoi metallurgii, 1960. 50 p. (13:2)
(Open-hearth furnaces--Design and construction)

TAYTS, Noy Yur'yevich; LIVSHITS, A.Ye., inzh., red.; YUSFIN, Yu.S., red.; ATTOPOVICH, M.K., tekhn. red.

[Technology of steel heating] Tekhnologiia nagreva stali. Izd.2., ispr. i dop. Moskva, Metallurgizdat, 1962. 567 p. (MIRA 15:6)
(Steel--Thermal properties)

LIVSHITS, B.A.

Changes in the mineralogical composition of the sinter in the course of its reduction. Izv. vys. ucheb. zav.; chern. met. 6 no.6:27-31 '63. (MIRA 16:8)

1. Dnepropetrovskiy metallurgicheskiy institut.
(Sintering) (Granular materials--Analysis)

LIVSHITS, B.A.; VASIL'YEV, G.S.

Changes in the microhardness of basic minerals in iron ore sinters. Izv. vys. ucheb. zav.; chern. met. 6 no.10:30-31 '63. (MIRA 16:12)

1. Dnepropetrovskiy metallurgicheskiy institut.

LIVSHITS, B. A.; VASIL'YEV, G. S.

Investigating the mechanical properties of the basic components of iron ore sinters. Izv. vys. ucheb. zav.; chern. met. 7 no.6: 23-25 '64. (MIRA 17:7)

1. Dnepropetrovskiy metallurgicheskiy institut.

L 12015-66 EWT(1)/EWT(m)/EWA(d)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) IJP(c) JD
ACC NR: AP5028278 SOURCE CODE: UR/0020/65/165/002/0316/0318

AUTHORS: Avraamov, Yu. S.; Gvozdev, A. G.; Livshits, B. G.

ORG: Institute of Steel and Alloys (Institut stali i splavov)

TITLE: Concerning the role of the limiting and surface energy in secondary recrystallization

SOURCE: AN SSSR. Doklady, v. 165, no. 2, 1965, 316-318

TOPIC TAGS: crystal growth, surface property, recrystallization

ABSTRACT: The authors have attempted to determine more accurately the ratio of the grain-boundary and surface contribution to the crystal-growth moving force during different stages of secondary recrystallization, without taking into account the retarding action of inclusions and thermal-etching grooves. The uniform growth of a two-dimensional grain from a stabilized matrix is analyzed to derive the grain-growth moving force. It is shown that the main contribution to the moving force is made by the surface energy when $R \leq 1.5\,r$ (R -- radius of the growing grain, r -- radius of the matrix grains), and that when $R > 1.5r$ the contribution of the boundary energy is larger. At the end of the secondary recrystallization, the fractions due to the surface and

Card 1/2 UDC: 532.614

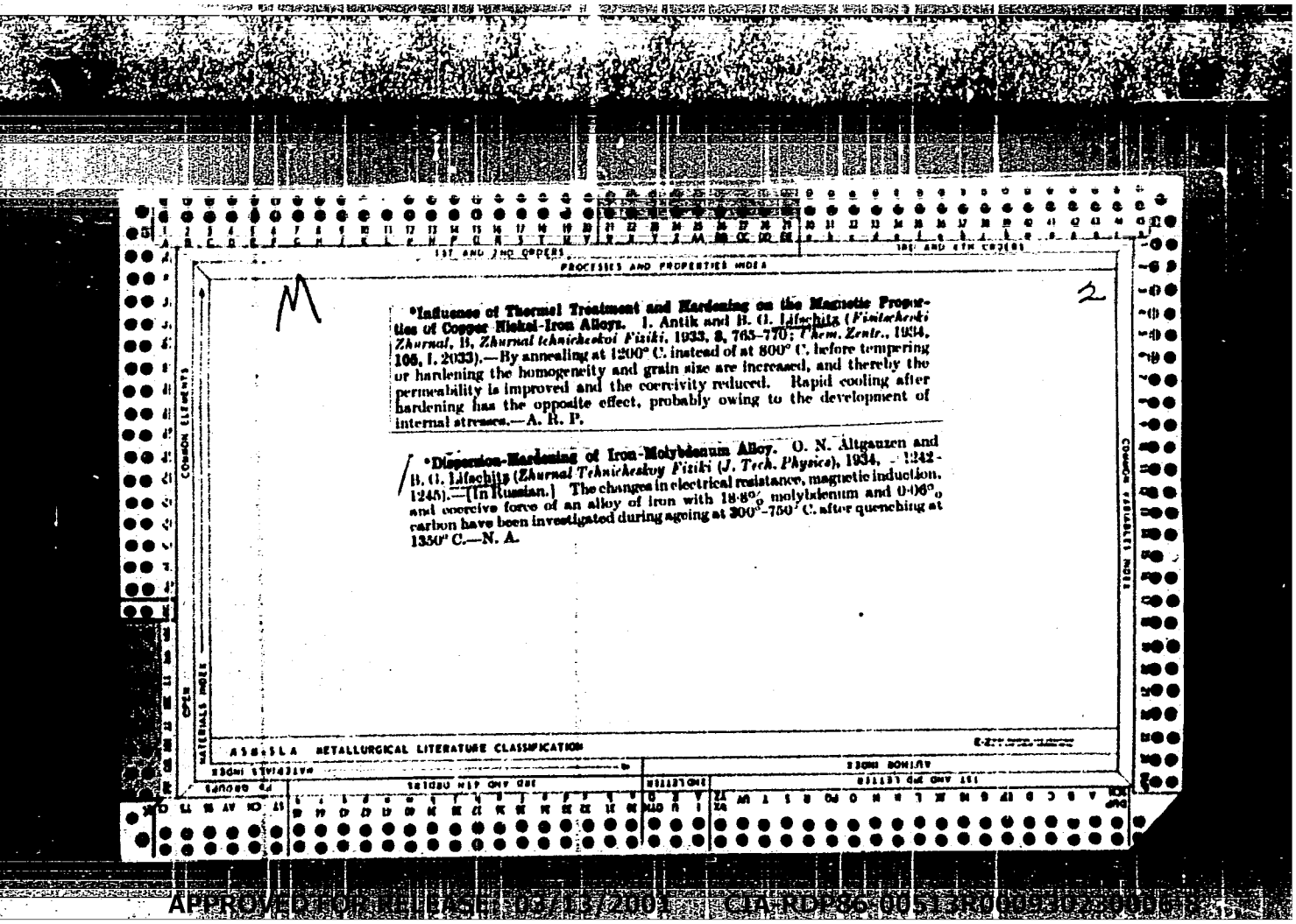
L 12015-65

ACC NR: AP5028278

boundary energies amount to 24 and 76 per cent respectively if $\Delta\sigma$, the difference of the surface energy of the growing grain and of the matrix grains is assumed to be 3 per cent of the surface energy (σ). This compares with values of 88 and 12 per cent estimated by Dunn and Walter (Acta met., v. 8, 497, 1960), and with 37 and 63 per cent obtained by the authors in the case of grain oriented transformer steel (Izv. vyssh. uchebn. zaved, Chernaya metallurgiya, No. 9, 1965). This report was presented by G. V. Kurdyumov. Orig. art. has: 3 figures and 4 formulas.

SUB CODE: 20/ SUBM DATE: 08May65/ NR REF SOV: 001/ OTH REF: 007

Card 2/2



PROCESSES AND PROPERTIES INDEX

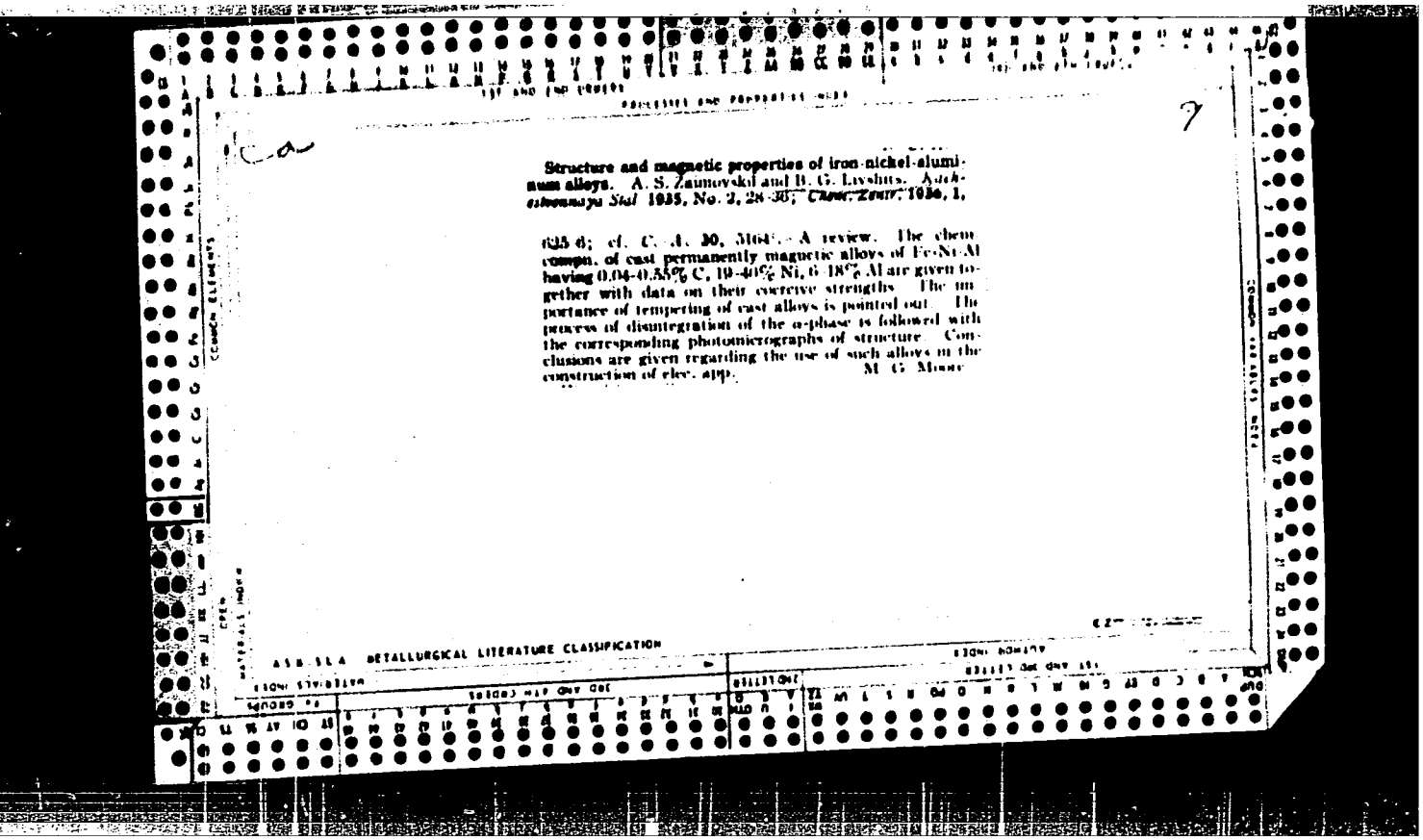
M

2

***Influence of Thermal Treatment and Hardening on the Magnetic Properties of Copper Nickel-Iron Alloys.** I. Antik and B. G. Lifschitz (*Fisicheskii Zhurnal, S, Zhurnal technicheskoi Fiziki*, 1933, **3**, 765–770; *Chem. Zentr.*, 1934, **105**, I, 2033).—By annealing at 1200° C. instead of at 800° C. before tempering or hardening the homogeneity and grain size are increased, and thereby the permeability is improved and the coercivity reduced. Rapid cooling after hardening has the opposite effect, probably owing to the development of internal stresses.—A. R. P.

***Dispersion-Hardening of Iron-Molybdenum Alloy.** O. N. Altgauzen and B. G. Lifschitz (*Zhurnal Technicheskoy Fiziki* (*J. Tech. Physics*), 1934, [illegible] 1242–1245).—[In Russian.] The changes in electrical resistance, magnetic induction, and coercive force of an alloy of iron with 18·8% molybdenum and 0·06% carbon have been investigated during ageing at 300°–750° C. after quenching at 1350° C.—N. A.

ASSIA METALLURGICAL LITERATURE CLASSIFICATION



Structure and magnetic properties of iron-nickel-aluminum alloys. A. S. Zaimovskiĭ and B. G. Lyubitsa. *Avtomobil'naya Stal'* 1935, No. 2, 28-36; *Chem. Zentr.* 1936, I, 635-6; cf. *C. A.* 30, 3164.—A review. The chem. compn. of cast permanently magnetic alloys of Fe-Ni-Al having 0.04-0.55% C, 19-40% Ni, 6-18% Al are given together with data on their coercive strengths. The importance of tempering of cast alloys is pointed out. The process of disintegration of the α-phase is followed with the corresponding photomicrographs of structure. Conclusions are given regarding the use of such alloys in the construction of elec. appl. M. G. Moore

ASB SLA METALLURGICAL LITERATURE CLASSIFICATION