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LATYNIN, A.A.

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(Dnieper Valley--Feldspar)
(Weathering)

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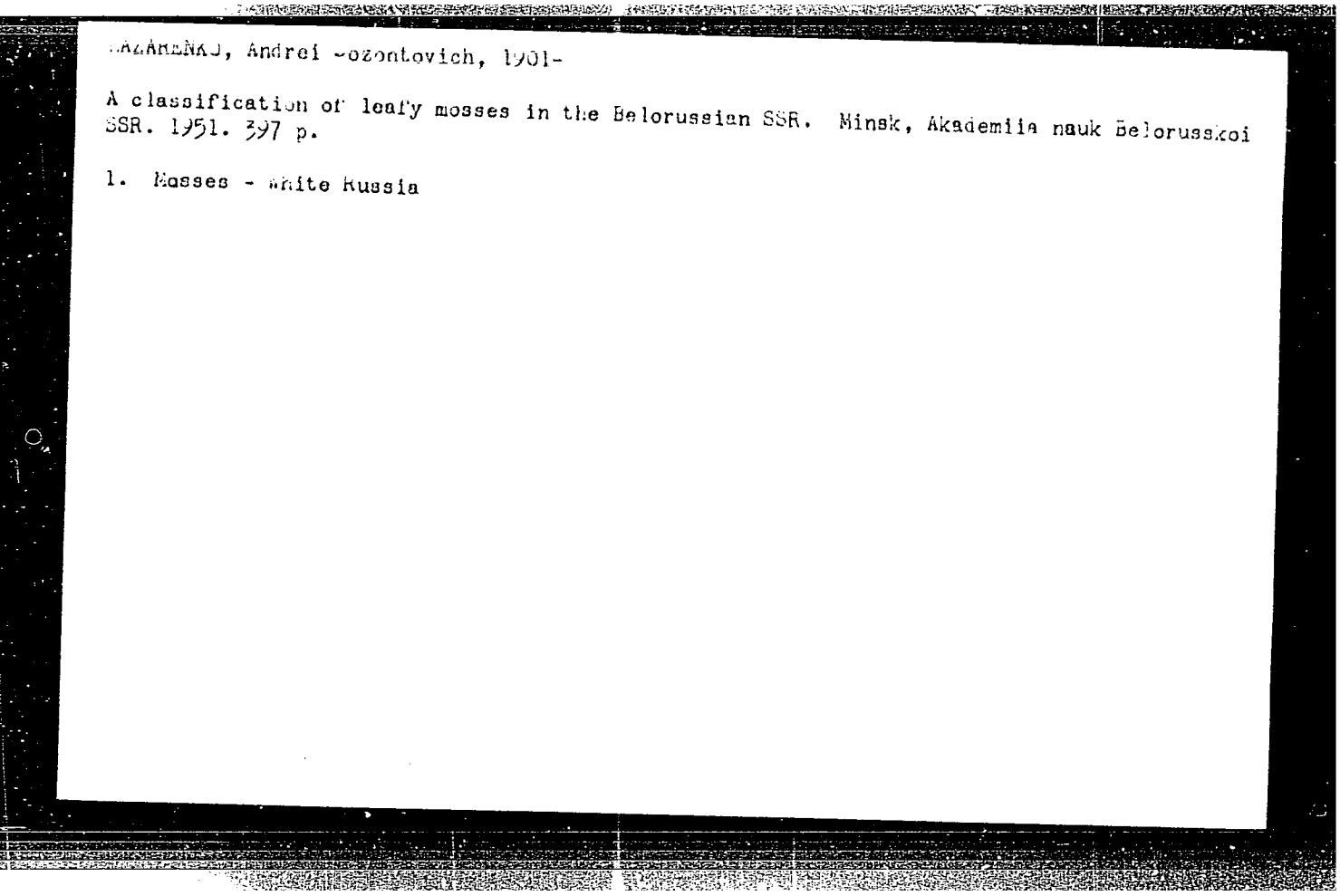

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LAZARENKO, A.S.

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(Mosses)

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LAZARENKO, A.S.

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LAZARENKO, A.S.

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Some results of a station study of the Alpine vegetation of the Carpathians [with summary in English]. Nauk.zap.Nauk.-pryrod.muz.AN URSR 6:87-106 '58. (MIRA 12:1)
(Carpathian Mountains--Pastures and meadows)

LAZARENKO, A.S.

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(Carpathian Mountains--Matgrass)

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Mosses as food for flax flea beetles. Dop.AN URSR no.7:955-959 '60. (MIRA 13:8)

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(Mosses) (Flea beetles)

LAZARENKO, A.S.

Desmatodon (Pottia) heimii (Hedw.) Lazar. from the middle Miocene of the Ukraine. Ukr. bot. zhur. 17 no.5:97-100 '60.
(MIRA 13:12)

1. L'vovskiy muzey yestestvennykh nauk, otdel botaniki.
(Monastyrek region--Mosses, Fossil)

LAZARENKO, A.S.

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1. Predstavleno akademikom V.N.Sukachevym.
(Mosses) (Generations, Alternating)

LAZARENKO, A.S.; PASHUK, Kh.T.; LESNYAK, Ye.N.

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[redacted]R. Dop. AN URSR no.10:1381-1384 '61. (MIRA 14:11)

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(Botany--Morphology)

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An attempt of statistical estimation of the variability of spores in Desmatodon heimii (Hedw.) Lazar. Ukr. bot. zhur. 18 no.1:68-81 '61. (MIRA 14:3)

1. L'vovskiy nauchno-prirodovedcheskiy muzey AN USSR, otdel botaniki.
(Mosses) (Spores(Botany))

LAZARENKO, A.S.

Anomalous sporogonia Desmatodon randii(Kenn.) Lazar. Ukr. bot. zhur. 18 no.5:95-96 '61. (MIRA 17:2)

1. L'vovskiy nauchno-prirodobedcheskiy muzey AN UkrSSR, otdel botaniki.

LAZARENKO, A.S.; KOVALENKO, A.P.; PASHUK, Kh.T.

Some spiral structures of the protonema in leafy mosses. Ukr. bot.zhur. 18 no.6:89-98 '61. (MIRA 15:3)

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LAZARENKO, A.S.

Genesis of the alternation of generations in bryophytes. Zhur. ob. biol. 22 no.5:372-382 S-O '61. (MIRA 14:9)

1. L'vovskiy nauchno-prirodovedcheskiy muzey AN USSR.
(BRYOPHYTES) (GENERATIONS, ALTERNATING)

LAZARENKO, A.S.

Rhododendron hotschyi Simk. with double flowers. Ukr.bot.zhur. 19 no.1:114 '62. (MIRA 15:4)
(Carpathian Mountain region—Rhododendron)

LAZARENKO, A.S.

Dynamics of the quantitative variability of the porophyte of Desmatodon randii (Kenn.) Lazar. in a natural population and in monosporous cultures. Biul. MOIP. Otd. biol. 68 no.6:133-148 N-D '63. (MIRA 17:1)

LAZARENKO, A.S.

Phenomenon of amphomorphism in mosses. Dokl. AN SSSR 162 no.4:962-964 Je '65. (MIRA 18:5)

1. Submitted March 8, 1963.

LAZARENKO, A.S.; VYSOTSKAYA, Ye.I. [Vysots'ka, O.I.]

Chromosome numbers of some leafy mosses from the Ukraine. Dop. AN URSR no.4:541-543 '64. (MIRA 17:5)

1. L'vovskiy nauchno-prirodovedcheskiy muzey AN UkrSSR. 2. Chlen-korrespondent AN UkrSSR (for Lazarenko).

LAZARENKO, A.S.

Apogamic sporogonia in the halophase of Pottia intermedia (Turn.) Fürnr. Dop. AN URSR no.11:1524-1526 '63.

(MIRA 17:12)

1. Naukhno-prirodovedcheskiy muzey AN UkrSSR; chlen-korrespondent AN UkrSSR.

LAZARENKO, A.V., inzh.

The PVK-150 steam turbine of the Kharkov Turbine Plant.
Energomashinostroenie 4 no.11:42-43 N '58. (MIRA 11:11)
(Steam turbines)

SOV/91-59-6-23/33

8(5)

AUTHOR: Lazarenko, A.V., Engineer

TITLE: The VKT-100 Steam Turbine

PERIODICAL: Energetik, 1959, Nr 6, pp 27-28 (USSR)

ABSTRACT: The article gives general data on the 100,000 kw VKT-100 condensation turbine constructed in late 1957 by the Khar'kovskiy turbinnyy zavod (Khar'kov Turbine Plant). The turbine has throttle steam distribution and is designed for initial steam parameters of 90 atm, 535°C. The rated capacity can be maintained with a drop in steam parameters to 85 atm, 490°C and a rise of cooling water to 33°C, by a special bypass valve for rechanelling steam beyond the fourth pressure stage of the high-pressure cylinder. A pressure of 0.03 atm is maintained in the condenser at a consumption of 16350 m^3/hour of 10°C cooling water. The turbine has two cylinders; a high-pressure cylinder with a solidly forged rotor, having 17 pressure stages, and

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a low-pressure cylinder having two streams, each stream having 4 pressure stages. The latter cylinder has a rotor made of forced-on discs. The guide blades and the work blades are of highly economical profiles arrived at by aerodynamic testing at the Tsentral'nyy kotlo-turbinnyy institut (Central Institute of Boiler and Turbine Construction). The work blade of the last stage of the low-pressure cylinder is 740 mm long (the longest blade ever used for turbines of 3000 rpm in the USSR or abroad). The main oil pump, with the turbine turning at 3000 rpm, 15 atm, supplies 125 m^3 of oil per hour. With the usual number of revolutions, the oil impeller maintains 6.7-6.8 kg/cm^2 of oil pressure. The turbine is provided with a series of safety devices, control devices and instruments, which make its operation safe and easy. In an emergency, the turbine can be stopped at once (manually or by remote control). Test runs have confirmed the technical-economical

advantages of this turbine. Its specific heat consumption, for example, of 2196 kcal/kw/h turned out to be less than expected, almost by 7.5% less than that of the 100 000 kw BK-100-2 turbine.

S/114/60/000/010/008/011/XX
E194/E155

AUTHOR: Lazarenko, A.V., Engineer

TITLE: The design of steam turbine type K-300-240 (K-300-240) of the Khar'kov Turbine Works

PERIODICAL: Energomashinostroyeniye, 1960, No.10, pp. 1-6

TEXT: In 1959 the Khar'kovskiy turbinnyy zavod (Khar'kov Turbine Works) imeni Kirov developed the design of a steam turbine type K-300-240 with an output of 300 MW at 3000 r.p.m. and the prototype was manufactured in 1960. The turbine is designed for initial steam conditions of 240 atm at 580 °C, with reheat to 565 °C, and a condenser pressure of 0.035 atm. The stop-valve steam conditions were selected to allow the use of pearlitic steels. The thermal circuit is first described. Under rated conditions the feed water is heated up to a temperature of 266 °C. The feed pump is driven by a turbine of 9760 kW. The guaranteed specific heat consumption of the complete turbo alternator set when operated without heat exchangers, evaporators or air coolers, and without make-up water, is 1830 kcal/kWh when the alternator efficiency is 98.7%, i.e. the machine-room efficiency is 46.9%. The turbine is

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The design of steam turbine type ... S/114/60/000/010/008/011/XX
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of three-cylinder design, with three exhausts to a common condenser. The capacity of the individual cylinders is: high pressure, 100 MW; intermediate pressure, 121 MW; low pressure, 79 MW in three flows. The weight of the turbine, including all three cylinders, receivers, supports and bearings, foundation plates and bolts, is 563 tons; the weight of the condenser is 385 tons. The overall weight, including lubrication equipment, is 1011 tons, giving a specific weight of 3.37 kg/kW. The main bearings are spherical. A single thrust bearing is used between the high- and the intermediate-pressure cylinders. Because the occurrence of salt deposits on blading could give high thrust, the thrust bearing was separated from the support bearings and made with self-equalising thrust pads which are uniformly loaded under all operating conditions. The high- and the intermediate-pressure rotors are rigidly coupled; a semi-flexible coupling is used between the intermediate- and the low-pressure cylinders and another between the low pressure and the alternator. Semi-flexible couplings were used in view of the satisfactory experience with turbines type ПВК-150 (PVK-150). The critical speeds of the individual rotors are: high pressure, 1695 r.p.m.;

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intermediate pressure, 1425 r.p.m.; low pressure, 1585 r.p.m. The critical speed of the set as a whole including the alternator ranged from 1555 r.p.m. for the first critical speed to 4660 for the fifth. The high-pressure cylinder has 11 stages, the intermediate 12 stages and each of the three flows of the low-pressure cylinder has 5 stages. The regulator stage has a single row of blades of 1050 mm diameter. The steam inlet part of the high-pressure cylinder is made with double walls, the outer frame being cast from steel 20ХМФЛ (20KhMF-L), the nozzle box is integral with the inner frame of the cylinder. Constructional features of high, intermediate and low-pressure cylinders are described in some detail. The governor system is designed with double amplification using hydraulic linkages with high-sensitivity piston-type speed regulators. A mechanical type pick-up is used to alter the pressure of the operating fluid under the differential governor valve. A main inlet-steam pressure controller comes into operation when the pressure falls below 5% of the rated value. The high-pressure hydraulic fluid is water drawn from the high-pressure side of the condensate pumps and filtered before use in the amplifying links and main servo motors. Electrical signals

The design of steam turbine type ... S/114/60/000/010/008/011/XX
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from pick-ups operated by load, main inlet-steam pressure, reheat-steam pressure, rotor acceleration and condenser pressure are transformed into appropriate displacements of the operating device by an electro-hydraulic converter. Protection is provided against overspeed, axial displacement of the rotor in the thrust bearing, excessive thermal expansion of the rotor, excessive lubricating-oil pressure drop, loss of condenser vacuum, and hydraulic shock; these protective devices operate independently of the governor system. The main mechanisms, including those for starting and stopping the set, can be remotely controlled.
There are 6 figures and 1 table.

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SHUBENKO-SHUBIN, L.A.; LAZARENKO, A.V., inzh.

PVK-150 steam turbine built by the Kharkov turbine plant.
Energomashinostroenie 7 no.6:1-7 Je '61. (MIRA 14:7)

1. Chlen-korrespondent AN USSR (for Shubenko-Shubin).
(Steam turbines)

PROKOPENKO, A.G., inzh.; LAZARENKO, A.V., inzh.; MARKIN, V.P., inzh.

Starting conditions and temperature state of the VKT-100 turbine.
Teploenergetika 8 no.5:17-24 My '61. (MIRA 14:8)
(Steam turbines)

L 07062-67 EWT(m) IJP(c)
ACC NR: AP6021624 (N) SOURCE CODE: UR/0089/66/020/003/0220/0223

AUTHOR: Zinin, E. I.; Korobeynikov, L. S.; Kulipanov, G. N.; Lazarenko, B. L.; Matveyev, Yu. G.; Popov, S. G.; Skrinskiy, A. N.; Starodubtseva, T. P.; Tumaykin, G. M.

ORG: none

52
B

TITLE: Control and regulation system for the electron beam parameters in the VEP-1 electron-electron storage ring

SOURCE: Atomnaya energiya, v. 20, no. 3, 1966, 220-223

TOPIC TAGS: electron beam, electron accelerator, storage ring, plasmoid acceleration, synchrotron radiation

ABSTRACT: The authors describe briefly the main systems used for different stages of adjustment and physical research of the VEP-1 assembly, first described by G. I. Budker et al. (Atomnaya energiya v. 19, 498, 1965). The parameters investigated were the magnitude of the injected current, the angular divergence and transverse dimensions of the beam, its energy and energy spread, and the position and angle at the exit from the electron-optical channel. The number of injected particles and the phase difference between the input and output were measured with lead probes. The first revolutions of the captured current were observed by recording the synchrotron radiation with a photomultiplier. The captured and stored currents were also measured with the aid of the synchrotron radiation. The radial position of the orbits was controlled either by regulating their radii by changing the frequency of the accelerating

Card 1/2 UDC: 621.384.6

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ACC NR: AP6021624

voltage or by producing azimuthal modifications of the magnetic field with additional turns. The positions of the orbits at the collision location were roughly monitored by means of an optical television system, and more accurately by a remotely controlled diaphragm located at the place of encounter. The systems used to measure the luminosity, to control the radial and azimuthal positions of the plasmoids, to determine the phase dimensions of the plasmoids, and to monitor and study various coherence effects are briefly described. The lifetime of the beam was monitored continuously with a special electronic system which determined the logarithmic derivative of a signal proportional to the current in the track. Orig. art. has: 6 figures.

SUB CODE: 20/ SUBM DATE: 22Nov65/ ORIG REF: 001/ OTH REF: 001

Card 2/2

LAZARENKO, B. R. and N. I. LAZARENKO

Elektricheskaia eroziia metallov. Moskva, Gosenergoizdat, 1944-45. 2v.

Electric erosion of metals.

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

LAZARENKO B.R.

FA 50T34

USSR/Engineering
Machinery
Sparks, Electric

Jan 1947

"Electric Spark Method of Finishing Metals," B. R. Lazarenko, Candidate Tech Sci, Laureate of Stalin Prize, 12 pp

"Vest Mashinostroy" No 1, p. 25-36

Constant research has gone on to determine new and harder steels and alloys that could be used as tools for the finishing of metal parts. Recently, however, discovered that an electric spark had finishing effect on metal and new field was opened. Author discusses apparatus, ways, and advantages of using this new method. Notes that in addition to the wide range of uses, method possesses accuracy that can be attained only by electric apparatus.

IC

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LAZARENKO, B. R. and LAZARENKO, N. I.

"Electric-Spark Machining of Metals," Gosenergoizdat, 120 pp, 1950.

LAZARENKO, B. R.

Achievment in the field of electric spark metalworking in USSR. Moskva, Znanie, 1955. 22 p. (Vsesoiuznoe obshchestvo po rasprostraneniiu politicheskikh i nauchnykh znanii. Ser. 2, no.4
(54-18006)

T135.V8 no.40

AID P - 2944

Subject : USSR/Electricity

Card 1/2 Pub. 27 - 9/15

Authors : Lazarenko, B. R., Doc. of Tech. Sci., and N. I. Lazarenko, Eng., Moscow

Title : Electrical spark machining of metals

Periodical : Elektrichestvo, 8, 63-68, Ag 1955

Abstract : The authors describe the methods of electrical spark machining of metals introduced in 1938 by the All-Union Electrical Engineering Institute. These methods permit the machining with great precision of all kinds of metals and alloys. The authors see in its future development the possibility of totally replacing heavy and costly machine tools by light and handy electrical spark machine tools. They present the theory of shock impulse technique, give several examples of its application in engineering practice, and describe some types of apparatus of Soviet construction. Ten photographs, 1 diagram, 8 references (1944-1954) (5 Soviet).

AID P - 2944

Elektrichestvo, 8, 63-68, Ag 1955

Card 2/2 Pub. 27 - 9/15

Institution : None

Submitted : Ap 15, 1955

SOV/137-57-1-1103

Translation from: Referativnyy zhurnal. Metallurgiya, 1957, Nr 1, p 142 (USSR)

AUTHOR: Lazarenko, B. R.

TITLE: Restoration of Machine Parts and Improvement of Their Wear Resistance by the Method of Electric-spark Hardfacing and Hardening (Vosstanovleniye i uvelicheniye iznosostoykosti detaley mashin sposobom elektroiskrovogo naneseniya pokrytiy i uprochneniya)

PERIODICAL: V sb.: Povysheniye dolgovechnosti mashin. Moscow, Mashgiz, 1956, pp 228-233

ABSTRACT: The process of electric-spark hardening (ESH) of a metallic surface layer, performed to restore the initial dimensions of worn components and improve their wear resistance, is based on the phenomenon of a directional ejection of metal under the action of an independent electric discharge. The ESH method permits depositing hard alloys (including cermet alloys) in the form of a 0.10-0.15 mm thick layer on various metals. The metal deposited must exhibit high wear resistance, have a high melting point, and be characterized by limited susceptibility to oxidation at elevated temperatures; these requirements are satisfied by the hard

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Restoration of Machine Parts and Improvement of Their Wear Resistance (cont.)

titanium alloys of the grades T15K6 and T30K4. The thickness of the layer deposited and the thickness of the parent metal exhibiting an increased hardness are functions of the quantity of energy associated with a single discharge: The thickness of either layer increases with increasing amounts of discharge energy. Performed at a potential of 150 volts, a capacitance of 6 mf, and a short-circuit current of 0.75 a, the ESH process increases the wear resistance of a component by 2-3 times. ESH performed at a potential of 100-200 v, a capacitance of 50-300 μf, and a short-circuit current of 1.0-2.0 a, followed by machining of the component with silicon-carbide tool tips increases the wear resistance of the component by 5-6 times and that of the part mated therewith by 1.5-2 times. The ESH method was tested under practical conditions on splined shafts, gear-shifting forks, sliding gears, etc., as well as on certain worn automobile parts operating at elevated temperatures and in need of restoration. The ESH method is also applicable to components which exhibit high hardness after surfacing with hard alloys or chilled cast iron.

R. B.

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LAZARENKO, BORIS ROMANOVICH

PHASE I BOOK EXPLOITATION 589

Lazarenko, Boris Romanovich, and Lazarenko, Natal'ya Iosafovna

Elektroiskrovaya obrabotka tokoprovodyashchikh materialov (Electrospark Machining of Conductive Materials) Moscow, Izd-vo AN SSSR, 1958. 183 p. (Series: Akademiya nauk SSSR. Nauchno-populyarnaya seriya) 10,000 copies printed.

Additional Sponsoring Agency: Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov.

Ed. of Publishing House: Moyzhes, S.M.; Tech. Ed.: Moskvicheva, N.I.; Resp. Ed.: Stoyanov, V.I.

PURPOSE: The purpose of this booklet is to acquaint the general reader with a new application of electricity - the electrospark machining of conductive materials.

COVERAGE: This booklet covers the fundamentals of electrospark machining of conductive materials. It presents basic diagrams

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of electric sparking systems and the principles of construction of electrospark installations. Various operations performed by the electrospark method of machining and the equipment used are illustrated and described in detail. There are 44 references, 24 of which are Soviet, 10 German, 5 French, and 5 English.

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AVAILABLE: Library of Congress

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9-10-58

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SOV/122-58-5-17/26

AUTHORS: Lazarenko, B.R., Doctor of Technical Sciences, Professor, and Lazarenko, N.I., Junior Scientific Assistant

TITLE: Modern Installations for the Electric Spark Machining of Metals (Sovremennyye ustanovki dlya elektroiskrovoy obrabotki metallov)

PERIODICAL: Vestnik Mashinostroyeniya, 1958, Nr 5, pp 65 - 69 (USSR)

ABSTRACT: All generators for electric spark machining store energy during the total cycle time and release it during the much shorter discharge time in the form of polarized electric current impulses. Both electrostatic condenser type and electromagnetic inductance type storage facilities are used. A number of impulse generators of Russian, American, French, British and Swiss design are briefly reviewed. Among the Russian designs, a universal installation, Elektrom-12, a tool-sharpening and surface-finishing machine, type LKZ-37, and an electric spark saw, type LKZ-49, are shown in external photographs. A commutatorless impulse generator developed by the electric machining laboratory of the Ac.Sc. USSR is mentioned. The Elektrom-12 machine consumes 5.6 kW.

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SOV/122-58-5-17/26

Modern Installations for the Electric Spark Machining of Metals

It can sink dies of up to 30 kg weight, cut through a 50 x 50 mm section, drill holes up to 3 mm dia., cut slots and perform electric spark hardening of surfaces. In the electric tool-sharpening machine, a cast iron disc rotates at 40 rpm and serves as the electrode. When sharpening tools, the tool has a reciprocating motion in the radial direction. The maximum power consumed is 5 kW. When sharpening three flanks of carbide tips of 10 x 20 mm section, 40 tips can be completed in one shift. The electric saw cuts metal by means of a tape or wire wound from one drum to another, moving at 5-10 mm/sec. The wire, made of copper or brass, produces a width of cut between 0.1 and 0.55 mm. The working fluid is solar oil.
There are 6 photographs and 8 references, 4 of which are Soviet, 2 German and 2 English.

Card 2/2 1. Metals--Machining 2. Machine tools--Performance 3. Machine tools--Design

LAZARENKO, B.R.

SOV/5186

PHASE I BOOK EXPLOITATION

Akademiya nauk SSSR. Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov

Problemy elektricheskoy obrabotki materialov (Problems of the Electrical Machining of Materials) Moscow, Izd-vo AN SSSR, 1960. 247 p. Errata slip inserted. 4,200 copies printed. (Series: Its: Trudy)

Sponsoring Agency: Akademiya nauk SSSR. Resp. Ed.: B. R. Lazarenko; Ed. of Publishing House: M. L. Podgoyetskiy; Tech. Ed.: S. P. Golub'.

PURPOSE: This collection of articles is intended for scientists and technicians concerned with the investigation of new ways of applying electrical energy.

COVERAGE: The book contains articles on studies carried out by the staff of the Tsentral'naya nauchno-issledovatel'skaya

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laboratoriya elektricheskoy obrabotki materialov Akademii nauk SSSR (TsNIL-ELEKTROM AN SSSR) (Central Scientific Research Laboratory for the Electrical Machining of Materials of the AS USSR) in searching for new applications of electrical energy. The results of these studies include: the dimensional machining of dielectrics and the utilization of electric pulsed discharges in carrying out certain chemical reactions, new information on processes occurring on electrodes and in the interelectrode space during short pulsing, and some new data on the technological processes in metal machining by electric current pulses. Much attention is paid to the analysis of the operation of power-supply sources used in the electrical machining and arc welding of metals. No personalities are mentioned. References accompany most of the articles.

TABLE OF CONTENTS:

Problems of the Electrical (Cont.) SOV/5186

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AVAILABLE: Library of Congress

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JP/dfk/ec
5-25-61

8(0), 24(0) SOV/30-59-6-7/40

AUTHOR: Lazarenko, B. R., Doctor of Technical Sciences

TITLE: Physical Bases of Electric Spark Processing of Metals (Fizicheskiye osnovy elektroiskrovoy obrabotki metallov)

PERIODICAL: Vestnik Akademii nauk SSSR, 1959, Nr 6, pp 49-56 (USSR)

ABSTRACT: This method of processing is based on the utilization of the electric erosion phenomenon in metals in the case of pulsed discharge. In this connection amperages are obtained at periods of 10^{-3} sec which may be obtained by no other means as well as temperatures close to those of the sun. In the course of this electric explosion the molten as well as the softened metal mass is torn out. The discovery of this method was published for the first time by the author of this article and N. I. Lazarenko (footnote 1) and aroused the attention of Soviet and foreign scientists. The product of the electric spark erosion has the spherical shape of a coagulated drop. Powder metallurgical and brittle materials which are not molten under the action of the current pulse but simply destroyed form an exception. Figure 1 shows the different phases of the scheme of

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the passage of the electric current through a liquid dielectric which is then described in detail. In this connection mention is made of the papers by the Academician L. A. Artsimovich. As was shown by the investigations hitherto carried out there exists no material which is capable of resisting the action of the electric pulse. The comparative values of the pulse number which is necessary to tear out 1 cm^3 different anode material are listed in a table. The number of pulses, the spark energy as well as the average amperage may be computed from the mentioned formulas. The electric spark method for metal processing can be easily controlled and applied to all materials irrespective of their physical and chemical properties without using any cutting tools. By means of this method technological processes can be carried out which are normally impossible e.g. not round openings with curved axes, products of a thickness of some dozens of microns. These processes are of high industrial efficiency. They may therefore be easily automatized. The Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov Akademii nauk SSSR (Central Scientific Research Laboratory for Electric Material Processing of the Academy of Sciences of the USSR) is per-

manently coordinating its work with related laboratories and organizations in the USSR as well as abroad. In conclusion the author states that the possibilities of this processing method are by far not completely utilized and that it would be expedient to use the short electric pulses for carrying out various chemical and biological investigations. There are 1 figure, 1 table, and 1 Soviet reference.

LAZARENKO, B. R., prof., doktor tekhn.nauk, laureat Stalinskoy premii.

"Electrom". Tekh.mol. 28 no.2:8-9 '60. (MIRA 13:6)
(Electric metal cutting) (Electric spark)

LAZARENKO, B.R., doktor tekhn.nauk

First International Symposium on Electric Spark Machining. Vest.AN SSSR 30 no.12:91-92 D '60. (MIRA 13:12)
(Metal cutting, Electric)

LAZARENKO, B.R.

"Everlasting" metal working tools. Izobr. i rats. no.3:8-9 Mr '61.
(MIRA 14:3)
(Electric metal cutting) (Dies(Metalworking))

S/030/61/000/011/006/007
B105/B147

AUTHOR: Lazarenko, B. R.

TITLE: Development of electrospark machining of metals

PERIODICAL: Akademiya nauk SSSR. Vestnik, no. 11, 1961, 116-117

TEXT: Two conferences on electrospark machining of metals were held in Moscow from June 19 to 22, 1961. One dealt with the physics of basic processes of the electrospark-machining method, the other with the relevant technology and apparatus. The following reports are mentioned: E. M. Strygin, on the method of investigating fast processes; L. S. Palatnik et al., on the change of physicochemical properties of a metallic surface under the action of an electric spark discharge; Ya. L. Linetskiy, on physicochemical changes in metals during electrospark machining; V. P. Aleksandrov, on residual stresses and the fatigue strength after machining of heat-resistant materials by the electrospark method; B. N. Zolotykh, I. G. Nekrashevich, and I. A. Bakuto, N. V. Afanas'yev, on the mechanism of the ejection of molten metal caused by thermal processes on the electrode surface; B. R. Lazarenko, on the mechanism of the ejection of metal from the

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Development of electrospark machining...

electrode surface through action of electrodynamic forces developing during the sudden liberation of electric energy. The theory of these processes may be used for explaining the development of lunar craters.

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S/030/61/000/004/008/015
B105/B206

AUTHOR: Lazarenko, B. R., Doctor of Technical Sciences

TITLE: Carbide dies

PERIODICAL: Vestnik Akademii nauk SSSR, no. 4, 1961, 83-87

TEXT: Problems arising from the change-over from steel dies to dies made from hard and wear-resistant materials are described. The Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov Akademii nauk SSSR (Central Scientific Research Laboratory for the Electrical Treatment of Materials, AS USSR), jointly with the Nauchno-issledovatel'skiy institut tverdykh splavov (Scientific Research Institute of Hard Alloys) have worked on their solution for years. Materials with increased impact strength and bending strength as well as methods for building dies from hard alloys were elaborated on the basis of tungsten carbide. Industrial production of hard-alloy plates of the dimension 10 x 20 x 300 mm having the required properties (Table 1) was introduced. The production of hard alloys of the brands BK11B (VK11V), BK20B (VK20V), and BK25B (VK25V) possessing still better properties, is being prepared. Replacement of steel by carbide materials

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Carbide dies

requires checking of the die design. For the production of carbide dies it was appropriate to apply specific methods of electrospark processing. Two types of the production of dies from hard alloys are described, i.e., 1) by cutting out the shape of the future part from the plate, and 2) by electrospark copying of the geometric forms. Manufacturing time of a steel die was 60 hr and of one from carbide, 32 hr, the latter process being carried out on an electrospark installation of the type Электром-15" (Elektrom-15). About 10,000 parts can be manufactured with a steel die and 500,000 parts with a hard-alloy die. According to data by the Pervyy Moskovskiy chasovoy zavod (First Moscow Watchmaking Plant), 300,000 parts can be manufactured with steel dies and 4,000,000 parts with hard-alloy dies, resulting in great savings. The use of hard-alloy dies manufactured in the laboratory, showed good results at the Podol'skiy mekhanicheskiy zavod (Podol'sk Mechanical Plant), one carbide die replacing up to 300 steel dies. It was also established that the impact strength of the carbide materials used increases with increased temperature (Table 2). By introducing hard-alloy dies, production could be greatly increased, manufacturing time was saved and the accuracy of the punched parts was improved. It is finally stated that quick-action presses with 2,000 strokes per minute may

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B105/B206

Carbide dies

be used, thus increasing the strength of hard-alloy dies by about 40%. The Laboratory intends to increase the use of hard-alloy dies in 1961. There are 3 figures and 2 tables.

Legend to Table 1: a) Type of alloy; b) specific gravity, g/cm^3; c) bending strength, minimum, kg/mm^2; d) impact strength, kg/cm^2; e) hardness RA.

Марка сплава а	Удельный вес, г/см³ б	Предел прочности при изгибе, не менее, кг/мм² в	Ударная вязкость, кг/см² г	Твердость, RA д
ВК8В	14,5	150	0,20	87,0
ВК15	14,0	160	0,35	86,5
ВК20В	13,5	200	0,50	86,0

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Carbide dies

Legend to Table 2: a) Type of alloy; b) impact strength, kg/cm^2 with temperature. [Abstracter's note: The photographs in Figs. 1-3 are not reproducible.]

Марка сплава a	Значение ударной вязкости (кг/см²) при T			
	20°	250°	600°	800°
BK8B	0,20	0,25	0,35	0,45
BK15	0,35	0,40	0,50	0,60
BK20B	0,46	0,46	0,60	0,65

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I 1110

31932
S/123/61/000/022/009/024
A004/A101

AUTHORS: Lazarenko, B.R., Lazarenko, N.I.

TITLE: Electrospark method of producing holes in diamonds

PERIODICAL: Referativnyy zhurnal. Mashinostroyeniye, no. 22, 1961, 64, abstract 22B383 (V sb. "Probl. elektr. obrabotki materialov", Moscow, AN SSSR, 1960, 51 - 57)

TEXT: The authors analyze a method of using electric discharges for the machining of nnnconductive materials, in particular diamonds. The method is based on the utilization of energy originating during the abrupt deceleration of the beam of flying electrons by the diamond surface. With this method the manufacturing time of holes in diamond dies is considerably reduced in comparison with mechanical cutting. There are 3 figures, 2 tables and 3 references.

N. Lazarenko

[Abstracter's note: Complete translation]

Card 1/1

LAZARENKO, B.R., otv. red.; KOTOV, V.A., ved. red. izd-va; DOROKHINA, I.N., tekhn. red.

[Problems of electrical spark-machining of materials]Problemy elektricheskoi obrabotki materialov. Moskva, Izd-vo Akad. nauk SSSR, 1962. 216 p. (MIRA 15:10)

1. Akademiya nauk SSSR. TSentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov.
(Electric metal cutting)