RAKOVSKIY, V.S.; SAKLINSKIY, V.V.; SOKOLOVA, T.F., tekhnicheskiy redaktor:

[Powdered metals in machine building; a reference manual] Metallokeramika v mashinostroenii; spravochnoe posobie. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1956. 71 p. (MLRA 9:5)
(Powder metallurgy)

AVRASIN, Ya.D., kandidat tekhnicheskikh nauk; BERG, P.P., professor, doktor tekhnicheskikh nauk, BERUSHTEYN, M.L., kandidat tekhnicheskikh nauk; GENEROZOV, P.A., starshiy nauchnyy sotrudnik; GLINER, B.M., inzhener; DAVIDOVSKAYA, Ye.A., kandidat tekhnicheskikh nauk; YELCHIN, P.M., inzhener; YERMIN, N.I., kandidat fiziko-matematicheskikh nauk; IVANOV, D.P., kandidat tekhnicheskikh nauk; KNOROZ, L.I., inzhener; KOBRIN, M.M., kandidat tekhnicheskikh nauk; KOMITSKIY, V.G., dotsent; KROTKOV, D.V., inzhener; KUDRYAVTSEV, I.V., professor, doktor tekhnicheskikh nauk; KULIKOV, I.V., kandidat tekhnicheskikh nauk; LEPETOV, V.A., kandidat tekhnicheskikh nauk; LIKINA, A.F., inzhener; MATVEYEV, A.S., kandidat tekhnicheskikh nauk; MIL'MAN, B.S., kandidat tekhnicheskikh nauk; PAVLUSHKIN, N.M., kandidat tekhnicheskikh nauk; PTITSYN, V.I., inzhener [deceased]; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk, RAKHSHTADT, A.G., kandidat tekhnicheskikh nauk; RYABCHENKOV, A.V., professor, doktor khimicheskikh nauk; SIGOLAYEV, S.Ya., kandidat tekhnicheskikh nauk; SMIRYAGIN, A.P., kandidat tekhnicheskikh nauk, SUL'KIN, A.G., inzhener; TUTOV, I.Ye., kandidat tekhnicheskikh nauk, KHRUSHCHOV, M.M., professor, doktor tekhnicheskikh nauk; TSYPIN, I.O., kandidat tekhnicheskikh nauk; SHAROV, M.Ya., inzhener; SHERMAN, Ya.I., dotsent; SHMELEV, B.A., kandidat tekhnicheskikh nauk; YUGANOVA, S.A., kandidat fiziko-matematicheskikh nauk; SATEL', E.A., doktor tekhnicheskikh nauk, redaktor; SOKOLOVA, T.F., tekhnicheskiy redaktor

[Machine builder's reference book] Spravochnik mashinostroitelia; v shesti tomakh. Izd-vo mashinostroit. lit-ry. Vol.6. (Glav. red.toma E.A.Satel'. Izd. 2-oe, ispr. i dop.) 1956. 500 p. (MLRA 9:8)
(Machinery--Construction)

RAKOVSKIY

USSR / Diffusion. Sintering.

Abs Jour : Ref Zhur - Fizika, No 4, 1957, No 9348

Author : Rakovskiy, V.S.
Title : Status of Powder Metallurgy and Fundamental Problems in its Development.

Orig Pub : Poroshkovaya Metallurgiya, Yaroslvl', 1956, 3-8

Abstract : No abstract.

Card : 1/1

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 2, p 73 (USSR)

AUTHOR: Rakovskiy, V.S.

TITLE: On the Use in Powder Metallurgy of Sonic and Ultrasonic Vibrations (K voprosu o primenenii zvukovykh i ul'trazvukovykh kolebaniy v poroshkovoy metallurgii)

PERIODICAL: V sb.: Poroshkovaya metallurgiya. Nr 4, Moscow, 1956, pp 43-46

ABSTRACT: Experimental sintering was performed on pressed specimens of Fe powders and of mixed powders of Cu + Sn, Ni + W, and Co + glass, which had been exposed for 2 hours to sonic vibrations of an 8,500-cps frequency (at maximum sintering temperature). The specimens so treated, compared with similar specimens which were sintered under identical conditions but which had not been exposed to the vibrations, exhibited superior mechanical properties. A refining of the microstructure was observed. The assumption is made that the use of ultrasonic vibrations would probably lead to an intensification of the sintering process.

I.B.

Card 1/1 1. Metallurgy 2. Sintering—Sonic vibrations 3. Sintering —Ultrasonic vibrations

Rakovskiy, V.S.

Category : USSR/Solid State Physics - Diffusion. Sintering E-9

Abs Jour : Ref Zhur - Fizika, No 3, 1957, No 6689

Author : Mirskiy, L.N., Rakovskiy, V.S., Bekshteyn, S.Z.
Title : Investigation of Diffusion Processes in Sintering, Using Radioactive Isotopes.

Orig Pub : Poroshkovaya metallurgiya, Yaroslavl', 1956, 59-60

Abstract : Preliminary experiments were carried out on producing a procedure for investigating the diffusion during sintering, using radioactive isotopes. The use of the procedure developed made it possible to conclude that the ideas proposed by Ya. I. Frenkel' concerning the "hole" mechanism of diffusion are correct. The coefficients of diffusions have been determined for the alloys W-Ni, TiC-Mo, TiC-W and TiC-Nb. These coefficients make it possible to calculate the activation energy of W, Mo, and Nb and consequently, in final analysis, to determine the strength of the bond in the lattice.

Card : 1/1

RAKOVSKIY, V. S. (Candidate of Technical Sciences)

"Present-day Status and Problems in Powder Metallurgy." p. 246 in book Modern Trends in the Field of Machine Building Technology: Collection of Articles, Moscow, Mashgiz, 1957 363p.

The author reviews some of the theoretical problems confronting powder metallurgy and describes briefly some of the modern methods of making metal powders. There are no references.

BEYLINA, TS.O., inzhener; BLAGONADEZHDIN, V.Ye., inzhener; BOGUSLAVSKIY, P.Ye., kandidat tekhnicheskikh nauk; VORONKOV, I.M., professor, GITINA, L.Ya., inzhener; GROMAN, M.B., inzhener; GOROKHOV, N.V., doktor tekhnicheskikh nauk [deceased]; DENISYUK, I.N., kandidat tekhnicheskikh nauk; DOVZHIK, S.A., kandidat tekhnicheskikh nauk; DUKEL'SKIY, M.P., professor, doktor khimicheskikh nauk [deceased]; DYKHOVICHNYY, A.I., professor; ZHITKOV, D.G., professor, doktor tekhnicheskikh nauk; KOZLOVSKIY, N.S., inzhener; LAKHTIN, Yu.M., doktor tekhnicheskikh nauk; LEVENSON, L.B., professor, doktor tekhnicheskikh nauk [deceased]; LEVIN, B.Z., inzhener; LIPKAN, V.F., inzhener; MARTYNOV, M.V., kandidat tekhnicheskikh nauk; MOLEVA, T.I., inzhener; NOVIKOV, F.S., kandidat tekhnicheskikh nauk; OSETSKIY, V.M., kandidat tekhnicheskikh nauk; OSTROUMOV, G.A.; PONOMARENKO, Yu.F., kandidat tekhnicheskikh nauk; RAKOVSKIY, V.S., kandidat tekhnicheskikh nauk; REGIRER, Z.L., inzhener; SOKOLOV, A.N., inzhener; SOSUNOV, G.I., kandidat tekhnicheskikh nauk; STEPANOV, V.N., professor; SHEMAKHANOV, M.M., kandidat tekhnicheskikh nauk; EL'KIND, I.A., inzhener; YANUSHEVICH, L.V., kandidat tekhnicheskikh nauk; BOKSHITSKIY, Ya.M., inzhener, redaktor; BULATOV, S.B., inzhener, redaktor; GASHINSKIY, A.G., inzhener, redaktor; GRIGRO'YEV, V.S., inzhener, redaktor; YEGURNOV, G.P., kandidat tekhnicheskikh nauk, redaktor; ZHARKOV, D.V., dotsent, redaktor; ZAKHAROV, Yu.G., kandidat tekhnicheskikh nauk, redaktor; KAMINSKIY, V.S., kandidat tekhnicheskikh nauk, redaktor; KOMARKOV, Ye.F., professor, redaktor; KOSTYLEV, B.N., inzhener, redaktor; POVAROV, L.S., kandidat tekhnicheskikh nauk, redaktor; ULINICH, F.R., redaktor; KLORIK'YAN, S.Kh., otvetstvennyy redaktor; GLADILIN, L.V., redaktor;

(Continued on next card)

HEYLINA, TS.O. --- (continued) Card 2.

RUPPENEYT, K.V., redaktor; TERPIGOREV, A.M., glavnyy redaktor; BARABANOV, F.A., redaktor; BARANOV, A.I., redaktor; BUCHNEV, V.E., redaktor; GRAFOV, L.Ye., redaktor; DOKUKIN, A.V., redaktor; ZADEMID-KO, A.N., redaktor; ZASYAD'KO, A.F., redaktor; KRASNIKOVSKIY, G.V. redaktor; LETOV, N.A., redaktor; DISHIN, G.L., redaktor; MAN'KOV-SKIY, G.I., redaktor; MEL'NIKOV, N.V., redaktor; ONIKA, D.G., redaktor; OSTROVSKIY, S.B., redaktor; POKROVSKIY, N.N., redaktor; POLSTYANOY, G.N., redaktor; SKOCHINSKIY, A.A., redaktor; SONIN, S.D., redaktor; SPIVAKOVSKIY, A.O., redaktor; STANCHENKO, I.K., redaktor; SUDOPLATOV, A.P., redaktor; TOPCHIYEV, A.V., redaktor; TROYANSKIY, S.V., redaktor; SHEVYAKOV, L.D., redaktor; BYKHOV-SKAYA, S.N., redaktor izdatel'stva; ZAZUL'SKAYA, V.F., tekhnicheskiy redaktor; PROZOROVSKAYA, V.L., tekhnicheskiy redaktor.

[Mining; an encuclopedic handbook] Gornoe delo; entsiklopedicheskii spravochnik. Glav.red. A.M. Terpigorev. Chleny glav.red. F.A. Barabanov i dr. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po ugol'noi promysh]. Vol.1. [General engineering] Obshchie inzhenernye svedeniia. Redkollegiia toma S.Kh.Klorik'ian i dr. 1957. 760 p.
(Mining engineering) (MLRA 10:10)

[redacted], V. S. (Dr.),

"A Few Questions of Theory and Practice in Soviet Powder Metallurgy," paper presented at Intl. Powder Metallurgy Meeting in Eisenach, 28-31 May 57

Die Technik, No. 10, Oct 1957.

SOV/137-58-7-14668

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 103 (USSR)

AUTHOR: Rakovskiy, V.S.

TITLE: The Current Status of Powder Metallurgy, and Undertakings Posing Problems Therein (Sovremennoye sostoyaniye i problemnyye zadachi v oblasti poroshkovoy metallurgii)

PERIODICAL: V sb.: Sovrem. napravleniya v obl. tekhnol. mashinostr. Moscow, Mashgiz, 1957, pp 246-257

ABSTRACT: A brief sketch of the history of the development of powder metallurgy (PM) and general information on engineering processes therein and on the applications and manufacture of cermet parts. Certain achievements of PM in the Soviet Union (development and mastery of the technology of manufacture of bimetallic inserts and the production of friction, magnetic, heat-resistant, sheet, and other materials) are discussed. The author believes the most important problems in the field of PM theory to be the development of the theory of sintering of single and multiphase systems, questions of the utilization of ultrasonic vibrations in sintering, development of a theory and methods of increasing the ductility of metal powder materials.

Card 1/2

SOV/137-58-7-14668

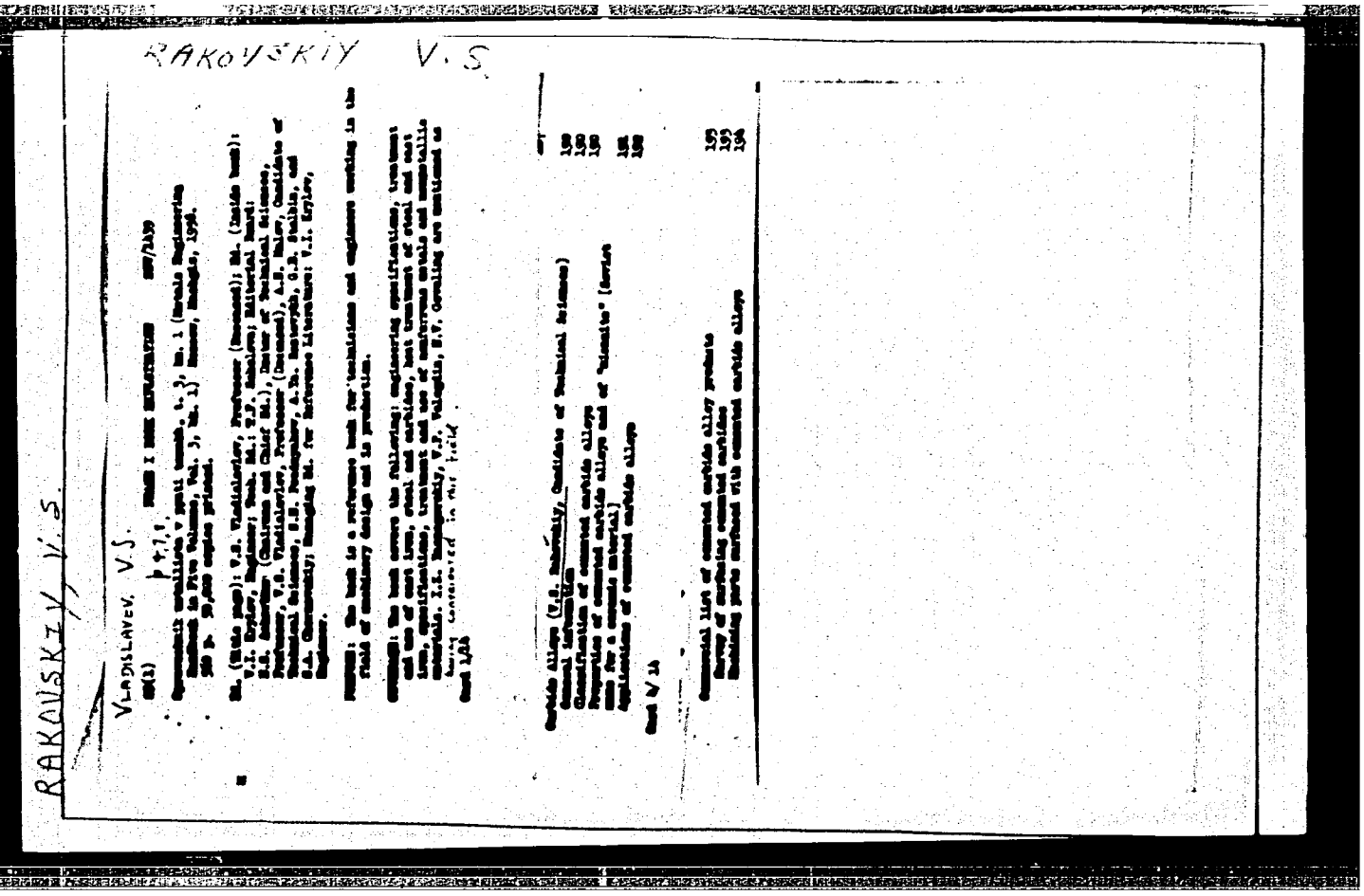
The Current Status of Powder Metallurgy, (cont.)

The most important engineering problems are the creation of porous ductile sheet materials, the further development of heat-resistant alloys based on refractory compounds (for jet and rocket engineering), mastery of the technology of manufacturing shaped porous products by slip casting and the development of cast porous shapes.

R.A.

1. Powder metallurgy--Applications

Card 2/2



RAKOVSKIY V.S.

VLADISLAVEV, V.S.

RAKOVSKIY V.S.

PHASE I BOOK EXPLOITATION SOV/4874

Rakovskiy, Valentin Sergeyevich, Grigoriy Valentinovich Samsonov, and Iosif Ivanovich Ol'khov

Osnovy proizvodstva tverdykh splavov (Fundamentals of Carbide-Alloy Production) Moscow, Metallurgizdat, 1960. 232 p. Errata slip inserted. 5,200 copies printed.

Ed.: A. K. Natanson; Ed. of Publishing House: M. S. Arkhangel'skaya; Tech. Ed.: P. G. Islent'yeva.

PURPOSE: This textbook is intended for students of nonferrous metallurgy tekhnikums, and engineers and technicians in the hard-alloy industry.

COVERAGE: The handbook was written in accordance with the course entitled "The Production of Hard Alloys," taught at tekhnikums specializing in nonferrous metals. It contains the fundamentals of powder metallurgy, manufacturing processes of all types of carbide alloys, characteristics of their properties, and inspection methods. The last section is devoted to the fundamentals of degree design projects. This book is

Card 1/9

S/129/61/000/004/012/012
E073/E535

AUTHOR: Rakovskiy, V. S., Chairman of the Powder Metallurgy Committee

TITLE: Fifth All Union Scientific-Technical Meeting on Powder Metallurgy

PERIODICAL: Metallovedeniye i termicheskaya obrabotka metallov, 1961, No.4, pp.63-64

TEXT: The meeting was held in Moscow on September 26-29, 1960. It was convened by the Komitet poroshkovoy metalurgii (Powder Metallurgy Committee) NTO MAShprom, jointly with the Institut metallokeramiki i spetssplavov AN UkrSSR (Institute for Cermets and Special Alloys, AS UkrSSR) and the Komitet po avtomatizatsii i mashinostroyeniyu Soveta Ministrov SSSR (Committee on Automation in Engineering, Council of Ministers USSR). 35 papers were read, the following being specifically mentioned:
Candidate of Technical Sciences M. Yu. Bal'shin (Institut metallurgii AN SSSR, Institute of Metallurgy, AS USSR) spoke on the generality of the laws governing the processes of pressing and sintering of metal powders.

Card 1/4

Fifth All Union Scientific .....

Professor G. A. Meyerson (Krasnoyarskiy institut tsvetnykh metallov i zolota, Krasnoyarsk Institute for Non-ferrous Metals and Gold) showed in his paper that sintering can be activated and accelerated by using disperse powders, cyclic temperature fluctuations and etching of the particle surface.
Professor A. M. Levin (Ural'skiy politekhnicheskiy institut, Ural Polytechnical Institute) dealt with the characteristics of the process of obtaining metal powders and analysed the basic factors which influence it.
Candidate of Technical Sciences V. N. Yeremenko (Institute for Cermets and Special Alloys, AS UkrSSR) pointed out the thermodynamic nature of the physical and chemical bases of this process and demonstrated the equations that characterize the dependence of the constants of the speed of the process of impregnation on the activation energy and temperature.
Doctor of Chemical Sciences Professor I. T. Kudryavtsev and P. I. Mikhaylov (Moskovskiy khimiko-tekhnologicheskiy institut im. D. I. Mendeleyeva, Moscow Chemical Technology Institute imeni D. I. Mendeleyev) gave practical demonstrations on the production of high disperse iron powders by the electrolysis method.
Card 2/4

Candidates of Technical Sciences B. A. Borok, V. G. Teplenko and Engineers V. V. Solov'yeva and I. P. Reutov (TsNIIChermet) dealt with the results of the method of producing powdery alloys developed by TsNIIChermet.
V. P. Lobashev (TsNIIChermet) dealt with the method of obtaining large size blanks of titanium and titanium alloys by hydrostatic pressing of the powders.
Engineering A. S. Sarvina (NIITAvtoprom) elucidated the technology of manufacture of cermet piston rings from iron powder.
A. N. Filippov (NAMI) presented the results of work on developing a technology for the manufacture of aluminium base antifriction materials.
Doctor of Technical Sciences I. V. Kragel'skiy (Institut mashinovedeniya AN SSSR, Institute of Machinery AS USSR and Institut metallurgii AN SSSR, Institute of Metallurgy AS USSR) presented results of development of metallo-plastic friction materials.
Candidates of Technical Sciences B. A. Borok, V. G. Teplenko et al. (TsNIIChermet) dealt with producing components of titanium, chromium, vanadium and their alloys. (Cheap and efficient methods).

S/129/61/000/004/012/012
E073/E535

Fifth All Union Scientific.....

Ye. I. Pavlovskaya (Giproneftemash) presented results of producing cermet filters from iron granules obtained by atomizing wire. Engineer V. I. Blagin (Gor'kovskiy avtomobil'nyy zavod, Gor'kiy Automobile Works) dealt with the manufacture of various cermet components.
O. V. Roman (Minskiy zavod zapchastey, Minsk Spare Parts Plant) dealt with the manufacture of cermet gears.
The conference has shown that the output of metallic powders and sintered components increased a hundredfold and that a number of new materials are being produced. However, it also showed that there is no centralized production of metallic powders and sintered components and that the cost of metallic powders is still too high, that there is no planning of the manufacture of equipment for the powder metallurgy industry and that there is insufficient exchange of information between the individual organizations concerned with powder metallurgy research.

ASSOCIATION: NTO MAShPROM

Card 4/4

PHASE I BOOK EXPLOITATION SOV/6026

Rakovskiy, V. S.

Osnovy poroshkovogo metallovedeniya (Fundamentals of Powder Metallurgy) Moscow, Oborongiz, 1962. 87 p. Errata slip inserted. 5550 copies printed.

Reviewer: M. Yu. Bal'shin, Candidate of Technical Sciences; Ed.: G. M. Makovskiy, Engineer; Ed. of Publishing House: A. A. Syubayeva; Tech. Ed.: A. Ya. Novik; Managing Ed.: A. S. Zaymovskaya.

PURPOSE: This booklet is intended for scientific research workers and engineers concerned with the use of powder-metallurgy products in various branches of industry.

COVERAGE: The booklet reviews properties of metal powders and the processes of compacting and sintering them. These subjects are dealt with in relation to the use of heat-resistant, sealing, frictional, antifrictional, and other powder-metallurgy products. A large section of the booklet is devoted to methods of controlling the quality of powder materials. No personalities are mentioned. There are no references.

Card 1/5

L 10101-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG/JXT(P)

ACCESSION NR: AP3001958 S/0226/63/000/003/0110/0110

77
58

AUTHOR: Rakovskiy, V. S.

TITLE: The Sixth All-Union conference on powder metallurgy [Held at Moscow, 21 November 1962]

14

SOURCE: Poroshkovaya metallurgiya, no. 3, 1963, 110

TOPIC TAGS: powder metallurgy, porosity, sintering, compacting hard alloys, strength, oxidation of porous materials, refractory compounds, dispersion strengthening, sintered Nb alloys

ABSTRACT: The Shestaya vsesoyuznaya konferentsiya po poroshkovoy metallurgii (Sixth All-Union Powder Metallurgy Conference) was sponsored by the Komitet poroshkovoy metallurgii NTO Mashprom (Committee of Powder Metallurgy NTO Mashprom), the Institut metallokeramiki i spetssplavov AN USSR (Institute of Powder Metallurgy and Special Alloys AN USSR), and Vsesoyuzny*y institut tverdy*kh splavov (All-Union Hard Alloys Institute). More than 400 delegates from 185 organizations attended. The following papers were presented and

Card 1/2

L 10101-63

ACCESSION NR: AP3001958

19

discussed: "Powder metallurgy of the USSR for the last two years," by V. S. Rakovskiy. "Powder metallurgy of the USA," by I. M. Fedorchenko. "Behavior of isolated porosity in crystals at high temperatures under the effect of gas pressure," by Ya. Ye. Geguzin. "Some problems of sintering and mechanical compacting," by M. Yu. Bal'shin. "Nature of the strength of hard alloys," by G. S. Kreymer. "Investigation of the oxidation process in porous materials," by I. M. Fedorchenko. "Study of physicochemical conditions of sintered refractory compounds made from oxides of refractory metals," by G. A. Meyerson. "Strengthening of molybdenum by dispersed refractory particles," by M. K. Ry*bal'chenko, and O. V. Padalka. "Methods of alloying and producing sintered Nb-base alloys," by L. M. Baykov. "Progress of powder metallurgy in the field of electrochemical materials," by A. B. Al'tman. "Thermomechanical treatment of powders for required properties," by G. F. Tikhonov, and A. A. Py*ryalov. "Use of endothermic atmosphere in sintering and heat treatment of powder metal parts," by A. A. Shmy*kov, and others. The seventh conference is planned for 1964.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 11Jul63 ENCL: 00

SUB CODE: 00 NO REF SOV: 000 OTHER: 000

Card 2/2

RAKOVSKIY, V.S.

Sixth All-Union Conference on Powder Metallurgy. Porosh.met. 3 no.3:110 My-Je '63. (MIRA 17:3)

RAKOVSKI, V. S.

RAKOVSKI,V.S.

"Some properties of high temperature -resisting powder metallurgy alloys."

Report presented at 2nd Intl. Powder Metallurgy Conference
Eisenach, East Germany 1-3 June 1961.

28157

S/122/61/000/003/011/013
D241/D305

1.1110 2808, 2208

AUTHORS: Mukaseyev, A.A., Engineer, Rakovskiy, V.S., Candidate of Technical Sciences, Babich, B.N., and Levinskiy, Yu. V., Engineers

TITLE: Some problems of ultrasonic machining hard-melting ceramic materials

PERIODICAL: Vestnik mashinostroyeniya, no. 3, 1961, 63-66

TEXT: Cast heat resisting alloys as well as alloys based on carbides and bonded with nickel or chrome work in temperatures up to 1000°. The alloys based on carbides, nitrides, borons and silicides of rare metals are considered as the most promising by K.I. Portnoy and G.V. Samsonov (Ref. 2: Boronnye splavy, VINITI, 1960). They posses high creep resistance and hardness as well as thermal stability, but it is impossible to machine them by usual methods. Their grinding has a low efficiency, whereas anode machining produces cracks. Ultrasonic machining is, therefore, the most suitable. The main criteria of the former method are the

Card 1/4

Some problems of ultrasonic ...

wear of the tool and material. The accuracy of the machined profile is reduced when the wear of tool is significant. The authors determined experimentally the coefficient K which is the ratio of wear of material to that of the tool. Specimens were prepared from powders of hard melting alloys of sufficient purity and homogeneity. Specimens were obtained by hot pressing in a laboratory lever press, and their porosity varied between 0 to 25% in order to study the effect of porosity on ultrasonic machining. After shot blasting, specimens were weighed to determine their density. The ultrasonic maching was carried out on a cast iron disc and using boron carbide suspension in kerosene. To assess the wear of tool and the value of coefficient K, the concentrator was made according to the exponential law of reduction. Balls from bearings were used as a tool, and their wear proved to be minimum compared to other materials. The spherical form of the ball allowed most accurate data to be obtained. The machined blind holes were measured with a dial indicator. The amplitude of swing of the tool vibrations was 0.10-0.11 mm, and the frequency was

Card 2/4

Some problems of ultr onic ...

18 - 20 Kc. The concentration of abrasive was 40-60%, which is the optimum, and its grain size - no. 150. The static load on the tool reached 400 g. The hardness of the material as well as its brittleness characterize its ability to plastic deformation. It is possible to assume that less ultrasonic energy is required for plastic deformation of harder materials and, therefore, a greater part of the power will be directed to breaking (cutting). Higher porosity of ceramics reduces the cross section of contacts between the particles, which affects the machinability. Comparison of data does not permit a relationship to be established between K and the microhardness of the material. It was noticed that specimens of the same material, but of different density possess unequal coefficients K. Alloys of W_2B, $MoSi_2$, ZrC as well as the heat resisting alloy BS-1 with a relative density from 70 to 100% were investigated. The data obtained show that higher porosity improves the ultrasonic machinability. It should be noted that the machinability of ceramics is 5-10 times greater than that of carbides. There are 1 figure, 4 tables and 6 references: 5 Soviet-

Card 3/4

Some problems of ultrasonic ...

bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: F.W. Glaser and W. Iwanick, Sintered titanium carbide, "Journal of Metals, vol. 4, no. 4, 1952.

Card 4/4

RAKOVSKIY, V.S.; BAL'SHIN, M.Yu., kand. tekhn. nauk, retsenzent; MAKOVSKIY, G.M., inzh., red.; SYUBAYEVA, A.A., red.izd-va; NOVIK, A.Ya., tekhn. red.

[Fundamentals of powder metallography] Osnovy poroshkovogo metallovedeniia. Moskva, Gos. nauchno-tekhn. izd-vo Oborongiz, 1962. 87 p. (MIRA 15:4)
(Ceramic metals--Metallography)

RAKOVSKIY, V.S., kand.tekhn.nauk

Ceramic-metal friction materials. Vest.mashinostr. 42
no.7:51-52 Jl '62. (MIRA 15:3)
(Ceramic metals)

RAKOVSKIY, V.S., kand.tekhn.nauk, dotsent

"Fundamentals of powder metallurgy" by I.M.Fedorchenko, R.A. Andrievskii. Reviewed by V.S.Rakovskii. Vest.mashinostr. 42 no.11:90 N '62. (MIRA 15:11)
(Powder metallurgy) (Fedorchenko, I.M.) (Andrievskii, R.A.)

SILAYEV, A.F. (Moskva); RAKOVSKIY, V.S. (Moskva)

Obtaining iron and ferroalloy powders by atomizing. Poroshk. met. 2 no.4:83-89 Jl-Ag '62. (MIRA 15:8)
(Powder metallurgy)

RAKOVSKIY, V.S.; SAKLINSKIY, V.V.; FILIMONOV, V.G., inzh., retsenzent; MARTENS, S.L., inzh., red.; GORDEYEVA, L.P., tekhn. red.

[Powder metallurgy in the machinery industry] Poroshkovaia metallurgiia v mashinostroenii; spravochnik. 2 izd., ispr. i dop. Moskva, Mashgiz, 1963. 101 p. (MIRA 16:8)
(Powder metallurgy—Handbooks, manuals, etc.)

S/279/63/000/001/006/023
E193/E383

AUTHORS: Alekseyeva, F.N., Matyushenko, R.S., Rakovskiy, V.S., Silayev, A.F. (Moscow)

TITLE: The role of distortions of the second type in the recrystallization process during sintering of refractory-metal powder compacts

PERIODICAL: Akademiya nauk SSSR. Izvestiya. Otdeleniye tekhnicheskikh nauk. Metallurgiya i gornoye delo. no. 1, 1963, 97 - 99

TEXT: X-ray diffraction measurements and metallographic examination were conducted on cylindrical specimens (10 mm in diameter, 15 mm high), compacted from niobium, tungsten and molybdenum powders under pressures of 1 000 - 8 000 kg/cm^2 and sintered for various periods at 1900 - 2100 °C. The results are reproduced in the form of graphs showing the grain size of the sintered compacts as a function of the compacting pressure and sintering time and temperature. A typical diagram constructed for tungsten compacts is shown in Fig. 2, where the grain size (d, μ) is plotted against the compacting pressure (P, kg/mm^2)

Card 1/3

The role of ....

[Abstracter's note: this is probably a mistake and the pressure should read "kg/cm^2".]
and sintering temperature (t, °C). Conclusions: 1) The relationship between the compacting pressure and the resultant microstresses of the second type, set up in niobium, tungsten and molybdenum powders, is similar for all these three metals. 2) Increasing the magnitude of microstresses of the second type increases the thermodynamic instability of the metal and creates conditions favourable for grain growth during sintering. 3) The intensity of growth of recrystallized grains of the metals studied depends on the magnitude of microstresses of the second type and on the sintering conditions. 4) The most intensive growth of recrystallized grains takes place in specimens compacted under pressures of 5000 - 6000 kg/cm^2; further increase in the compacting pressure brings about a decrease in the final grain size of the sintered material. 5) Controlling the grain size of sintered parts provides a means for increasing their resistance to creep. There are 3 figures.

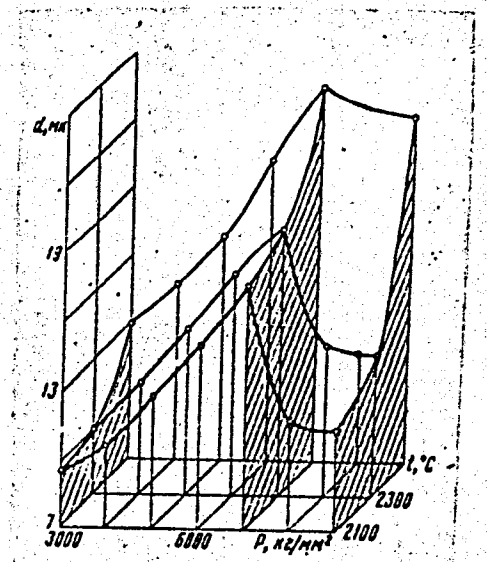
SUBMITTED: June 23, 1962

Card 2/3

S/279/63/000/001/006/023
E193/E383

The role of ....

Fig. 2:



Card 3/3

L 32225-65 EWP(e)/EWT(m)/EWP(w)/EPF(n)-2/EWA(d)/T/EWP(t)/EWP(b) Pf-4/Pu-4 IJP(c)

ACCESSION NR: AP4046739 JD/JG S/0226/64/000/005/0001/0008

AUTHORS: Alekseyeva, F.N. (Moscow); Matyushenko, R.S. (Moscow); Rakovskiy, V.S. (Moscow); Silayev, A.F. (Moscow)

TITLE: On the role of secondary distortions during the compacting processes in pressing and recrystallization during the sintering of refractory metals

SOURCE: Poroshkovaya metallurgiya, no. 5, 1964, 1-8

TOPIC TAGS: refractory metal, compacting, tungsten, molybdenum, niobium, chromium, secondary distortion, microdistortion, afterflow, microstress, recrystallization grain growth control, sintering temperature

ABSTRACT: An analogy was established in the character of the process of compacting 15-mm-high cylindrical W, Mo, Nb, and Cr specimens. An accumulation of microdistortions was observed, their size reaching a maximum at 4000 to 6000 dyne/cm^2. A further rise in pressure had no effect on the microdistortions. The pattern of changes in the values of afterflows was found to coincide with the pattern of changes that occur under the effect of secondary microstresses. Secondary microdistortions exerted a substantial influence on the size

Card 1/2

L 32225-65
ACCESSION NR: AP4046739

of the recrystallization grains. An increase in these microstresses was accompanied by an intensive growth of the recrystallized grains until they reached a stage at which a saturation with microstresses occurs. Subsequently, the grain sizes stablized and the effect of secondary stresses was negligible. At elevated sintering temperatures and with long holding periods, the recrystallized grains displayed a conspicuous tendency towards intensive growth. Porosity was also found to affect the character and the activity of recrystallization during sintering: it declined under increasing pressures and, consequently, the contact surface expanded which, in turn, enhanced the recrystallization process. The experimental results will make it possible to adjust the pressure and the sintering conditions with a view to grain size control, which may have a beneficial effect on rupture strength and creep resistance of refractory metals and alloys. Orig. art. has: 8 figures

ASSOCIATION: None

SUBMITTED: 18Apr63 ENCL: 00
SUB CODE: MM NR REF SOV:004 OTHER: 000

Card 2/2

ALEKSEYEVA, F.N. (Moskva); MATYUSHENKO, R.S. (Moskva); RAKOVSKIY, V.S. (Moskva); SILAYEV, A.F. (Moskva)

Process of compacting high-melting metal powders during pressing. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.2:100-103 Mr-Ap '63. (MIRA 16:10)

SVESHNIKOVA, V.I., inzh.; RAKOVSKIY, V.S., doktor tekhn.nauk

Economic efficiency of the powder-metallurgy method. Vest.mashinostr. 43 no.5:71-72 My '63. (MIRA 16:5)
(Powder metallurgy)

PAVLOVSKAYA, Ye.I., inzh.; KAROVSKIY, V.S., doktor tekhn. nauk

Powdered-metal filters. Vest. mashinostr. 43 no.10:37-38 O '63.
(MIRA 16:11)

L 56089-65 EWP(e)/EWT(m)/EPR/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(h) Pf-4/
Ps-4/Peb LJP(c) JD
ACCESSION NR: AP5015155 UR/0137/65/000/005/0030/0030

SOURCE: Ref. zh. Metallurgiya, Abs. 5G181 31
B

AUTHOR: Rakovskiy, V. S.

TITLE: Soviet powder metallurgy and its basic scientific, industrial, and organizational tasks

CITED SOURCE: Tr. 7 Vses. nauchno-tekhn. konferentsii po poroshk. metallurgii. Yerevan, 1964, 3-11

TOPIC TAGS: powder metallurgy, powder metallurgy industry

TRANSLATION: The achievements of powder metallurgy in the Soviet Union for the last two years are reviewed. The main advantages of powder metallurgy are examined. A short characterization of the problems facing powder metallurgy is given: the development of hydrostatic pressing, rolling of powders, the use of reinforcement, production of objects with complicated shapes, an increase in the size of the objects produced, development of ultrasonic, impulse, and induction sintering, pressing in vacuum, creation of new materials (fibrous, type SAP based on high melting metals, multilayer), working out of methods for calculation and

Card 1/2

L 56089-65
ACCESSION NR: AP5015155 0

mathematical analysis of powder metallurgy processes, and the creation of theoretical bases for the powder metallurgical industry. Organizational problems involved in the development of powder metallurgy are examined.
V. Shelamov

SUB CODE: MM ENCL: 00

Card 2/2

L 8730-65 EWT(m)/EPF(n)-2/EPR/EWP(b) Ps-4/Pu-4 AS(mp)-2/ASD(f)/ASD(m)-3
JD/JG
ACCESSION NR: AP4044909 S/0226/64/000/004/0033/0036

AUTHOR: Alekseyeva, F. N. (Moscow); Matyushenko, R. S. (Moscow); Rakovskiy, V. S. (Moscow); Silayev, A. F. (Moscow)

TITLE: Effect of production conditions on the density and strength of sintered refractory metals

SOURCE: Poroshkovaya metallurgiya, no. 4, 1964, 33-36

TOPIC TAGS: refractory metal, refractory metal production, niobium, molybdenum, niobium production, molybdenum production, sintered niobium property, sintered molybdenum property, sintered molybdenum production, sintered niobium production

ABSTRACT: An attempt has been made to establish optimal conditions for compacting and sintering refractory metal powders. Experiments showed that an excessive compacting pressure has a negative effect and that best results are obtained with a pressure of 4000—6000 dan/cm^2. The maximum density of compacts is attained by sintering molybdenum in hydrogen at 2173K for 4—5 hrs and by sintering niobium in a vacuum of 0.133 n/m^3 (10^{-3} mm Hg) at the same temperature for

Card 1/2

L 8730-65

ACCESSION NR: AP4044909

2

3-4 hrs. Residual microporosity of molybdenum compacts sintered in hydrogen amounts to 2.5%, while that of compacts sintered in a vacuum amounts to 6.5%. The hardness of niobium and molybdenum compacts increases with increasing density. The strength of both metals in the 293-1473K range drops continuously with increased test temperature from 280 and 205 $n/m^2 \cdot 10^6$ at 293K to 155 and 100 $n/m^2 \cdot 10^6$ at 1473K for molybdenum and niobium, respectively. Orig. art. has: 6 figures.

ASSOCIATION: none

SUBMITTED: 14Apr63 ATD PRESS: 3111 ENCL: 00

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

Card 2/2

ALEKSEYEV, F.N. (Moskva); MATYUSHENKO, R.S. (Moskva); RAKOVSKIY, V.G. (Moskva); SLAVOV, A.F. (Moskva)

Role of second-order distortions in compaction processes during pressing and recrystallization in the sintering of high-melting metals. Porosh.met. 4 no.5:1-8 S-O '64. (MIRA 18:10)

ALEKSEYEVA, [illegible] (Moskva); MATYUSHENKO, [illegible] (Moskva); [illegible], V.D. (Moskva); PILAYEV, A.F. (Moskva)

Effect of technological conditions on the density and strength of sintered high melting alloys. Poroshk.met. 4 no.4:33-36 '64. Jl-Ag (MIRA 18:8)

L 1573-66 EWT(d)/EWP(e)/EWP(w)/EPF(n)-2/EWG(m)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c) IJP(c) EM/JD/HW/JG

ACCESSION NR: AP5017233 CZ/0034/65/000/007/0521/0522

AUTHOR: Rakovskij, V.S. 44,55

TITLE: Progress in Soviet powder metallurgy 44,55

82
42
B

SOURCE: Hutnicke listy, no.7, 1965, 521-522

TOPIC TAGS: metallurgic conference, metallurgic research, powder metallurgy, powder metal

ABSTRACT: In his opening statement at the Seventh Scientific-Engineering Conference on Powder Metallurgy, held in 1964 in Yerevan, V. S. Rakovskiy summarized the most important achievements in the field and indicated directions for future effort. Several research institutes participated in the research and development work in powder metallurgy.

The Institute for the Problems of Material Science 44,55 (former Institute of Powder Metallurgy and Special Alloys), Ukrainian Academy of Sciences, continued investigations of the strength of sintered materials and expanded research on the nature of thermal stability and heat and oxidation resistance.

Card 1/4

L 1573-66
ACCESSION NR: AP5017233

The Moscow Institute of Steels and Alloys, Khar'kov University, and the Belorussian Polytechnic Institute studied processes of compaction and sintering.

The Institute of Metallurgy im. I. M. Baykov developed new materials based on metal fibers. Production technology for a new type of porous catalyzer was also developed at this institute.

The Institute of Physical Chemistry, Academy of Sciences USSR, studied the effect of vibration and surface-active agents on the compaction of powders.

The Central Scientific Research Institute of Ferrous Metallurgy developed a powder-metallurgy method for the production of molybdenum sheets. The production cost of these sheets is 50—65% lower than that of sheets rolled from cast molybdenum. The institute is also working on a similar method for tungsten steel.

The Scientific Research Institute of the Technology of the Automobile Industry built a transfer line for a powder-metallurgy method of manufacturing three-metal bearings.

Card 2/4

L 1573-66

ACCESSION NR: AP5017233

Other developments include titanium filters, stainless-steel filters, new contact materials, SAP sheets and bars, and iron-base and copper-base anti-friction materials.

Three main avenues of future research have been indicated:

1. Compaction: primarily hydrostatic compaction and compaction of complex shapes. Existing 1200- and 1500-ton presses produce compacts 250—300 mm in diameter and 500—600 mm high. However, much larger compacts, 700—800 mm in diameter and over 1000 mm high, are needed which require press capacities of 5000—10,000 tons. The width of sheets rolled from powder does not exceed 600 mm. New equipment is needed to roll wider sheets and to roll at high temperatures and in vacuum. A method by which intricately shaped subassemblies can be obtained by joining several green compacts followed by sintering appears promising.

Card 3/4

L 1573-66

ACCESSION NR: AP5017233

2. Sintering: Intensification of sintering primarily by the application of ultrasound, induction heating, and stored energy pulses which yield very homogeneous products is the main goal of research. Cyclic sintering and hot vacuum compacting also offer some advantages.

3. Development of new materials: The importance of this direction is illustrated by fiber materials and dispersion-strengthened refractory metals. Filters made of stainless-steel fibers have a porosity of up to 90%, which is hardly attainable in metal-powder materials. The unique properties of SAP alloys result from the great difference in the melting points of alloy components, aluminum and aluminum oxide. No oxide with a similar difference in the melting point in relation to refractory metals such as titanium, chromium, molybdenum, or niobium has been found; in composites based on these metals the main problem is to achieve a certain optimal distribution of components.

ASSOCIATION: none

SUBMITTED: 00	ENCL: 00	SUB CODE: MM
NR REF SOV: 000	OTHER: 000	ATD Press: 4086-F

Card 4/4

RAKOVSKIY, V.E., doktor tekhn.nauk

All-Union scientific-technical conference on powder metallurgy. Vest.mashinostr. 45 no.3:84 Mr '65.

(MIRA 18:4)

RAKOVSKIY, Valentin Viktorovich; BELKIN, B.G., kand.tekhn.nauk, Laureat Leninskoy premii, retsenzent; SABASHNIKOVA, Ye.S., red.; MALEK, S.N., tekhn. red.

[Measurements in sound recording systems for motion pictures] Izmereniia v apparature zapisi zvuka kinofil'mov. Moskva, Izd-vo "Iskusstvo", 1962. 402 p. (MIRA 16:4)
(Motion pictures, Talking--Equipment and supplies)
(Sound--Measurement)

RAKOVSKIY, Valentin Viktorovich; BELKIN, B.G., kand.tekhn.nauk, Laureat Leninskoy premii, retsenzent; SABASHNIKOVA, Ye.S., red.; MALEK, Z.N., tekhn. red.

[Measurements in sound recording apparatuses for motion pictures] Izmereniia v apparature zapisi zvuka kinofil'mov. Moskva, Iskusstvo, 1962. 402 p. (MIRA 16:6)
(Motion pictures, Talking--Noise)
(Interference (Sound)--Measurement)

PEREVA, Vladimir Mikhaylovich; PELL, V.G., dots., kand. tekhn. nauk, red.; ALEKSANDER, I.N., inzh., red.; RAKOVSKIY, V.V., inzh., red.; BARANOV, A.M., red.; AKSEL'ROD, I.Sh., tekhn. red.

[German-Russian dictionary of motion-picture and photographic technology]Nemetsko-russkii slovar' po kinofototekhnike. Pod obshchei red. V.G.Gellia. Red. I.N.Aleksander, V.V.Rakovskii. Moskva, Glav.red. inostr. nauchno-tekhn. slovarei Fizmatgiza, 1962. 583 p. (MIRA 15:12)
(Motion pictures--Dictionaries) (Photography--Dictionaries)
(German language--Dictionaries--Russian)

S/187/62/000/001/002/003
D053/D114

AUTHORS: Rakovskiy, V.V., and Genina, Ye.M.

TITLE: A new method for measuring nonlinear distortions of sound tracks

PERIODICAL: Tekhnika kino i televideniya, no. 1, 1962, 38-50

TEXT: A new method and a device for measuring nonlinear distortions of optical and magnetic sound tracks on films is described. The method and an electric diagram of the measuring device were suggested by V.V. Rakovskiy in his Author's Certificate no. 136573, 9 May 1960. The device was built by the "Lenfil'm" Film Studio and tested during 1960 - 1961. The article gives main results on this research work. The method consists in the use of a test signal having the form of a white-noise frequency band. Based on the research works conducted by the Laboratoriya fonetiki Leningradskogo gosudarstvennogo universiteta (Laboratory of Phonetics of the Leningrad State University) and the works of L.A. Varshavskiy, I.M. Litvak (Ref. 13: sb. "Problemy fiziologicheskoy akustiki", vol. III, izd., AS USSR, 1955) and Ye.Yu. Gurbanov, L.R. Zinder (Ref. 14: Trudy VKIAS, sb. No. 40, 1954), the lower limiting frequen-

Card 1/6

A new method for measuring ...

cy of the white-noise signal was set at 3 kc and its upper limiting frequency - at 12 kc. Block diagram of the measuring device is illustrated in Fig. 5. Its electrical circuit (Fig. 9) consists of two basic units: a test signal generator and a meter of nonlinear distortion products. Measuring tests of the nonlinear distortions were conducted in magnetic and optical sound tracks on 35 and 16-mm films. The recording of the 35-mm films was done with the K3M-6 (KZM-6) synchronous magnetic recorder having a sound-carrier speed of 456 mm/sec. Among others, the following film types were used: Type 2, Type 4, Type 6, Pyral, Gevasonor, and the 16-mm Agfa L-MP-3 film. Distortions and output of the magnetic sound tracks were measured by the two-tone method and the white-noise-band method. The results obtained, plotted in 6 graphs, indicated that distortions measured by the white-noise-band method surpass those measured by the two-tone method by 2 to 8 db (1.26 to 2.5 times). Similar tests conducted with optical recordings on 3T-6 (ZT-6), 3T-7 (ZT-7), Gevaert and Ferrania black-and-white and color films, indicated that the results obtained by the white-noise-band method coincide closely with subjective evaluation, while those obtained by the two-tone method are diverging considerably. The optical sound tracks were recorded on the

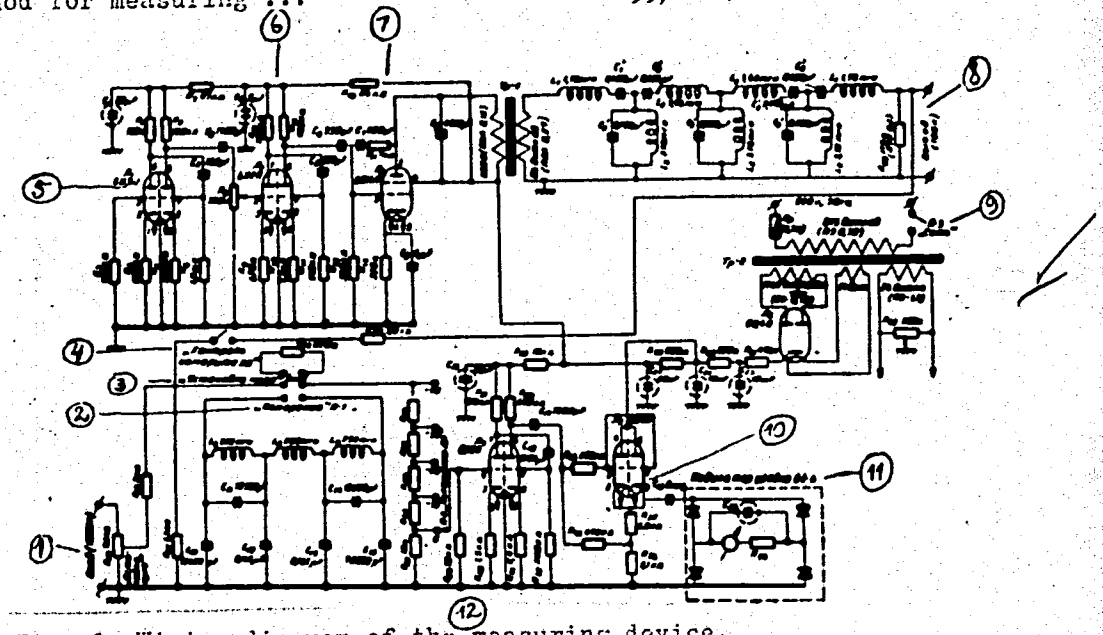
Card 2/6

A new method for measuring ...

Klangfilm-Eurokord-N recorder and the results obtained are plotted in 8 graphs. There are 23 figures and 16 references: 7 Soviet-bloc and 9 non-Soviet-bloc. The four most recent references to the English-language publications read as follows: L.H. Bacon, W.R. Luckett, "A New Cross-Modulation Measuring Equipment", JBKS, 1959, No. 9; J.F. Finkle, "Photographic Duplication of Variable-Area Sound Recording", JSMPTE, 1958, No. 8; ASA PH 22.52 - 1954. "Cross-Modulation Tests 16mm Variable-Area Photographic Sound", JSMPTE, 1954, No. 10; J.P. Livadary, S.J. Twining, "Variable-Area Release from Variable-Density Original Sound Tracks", JSMPE, 1945, No. 11.

Card 3/6

A new method for measuring ...



Card 5/6 Fig. 9. Wiring diagram of the measuring device.

Legend:

1 - input;

2 - switch for measurements;

3 - zero setting;

4 - meter control;

5 - 6Н3П (6N3P) tube;

6 - 6Н2П (6N2P) tube;

7 - 6Н14П (6N14P) tube;

8 - output;

9 - network switch;

10 - 6N3P tube;

11 - 83-Б (83-B) level indicator;

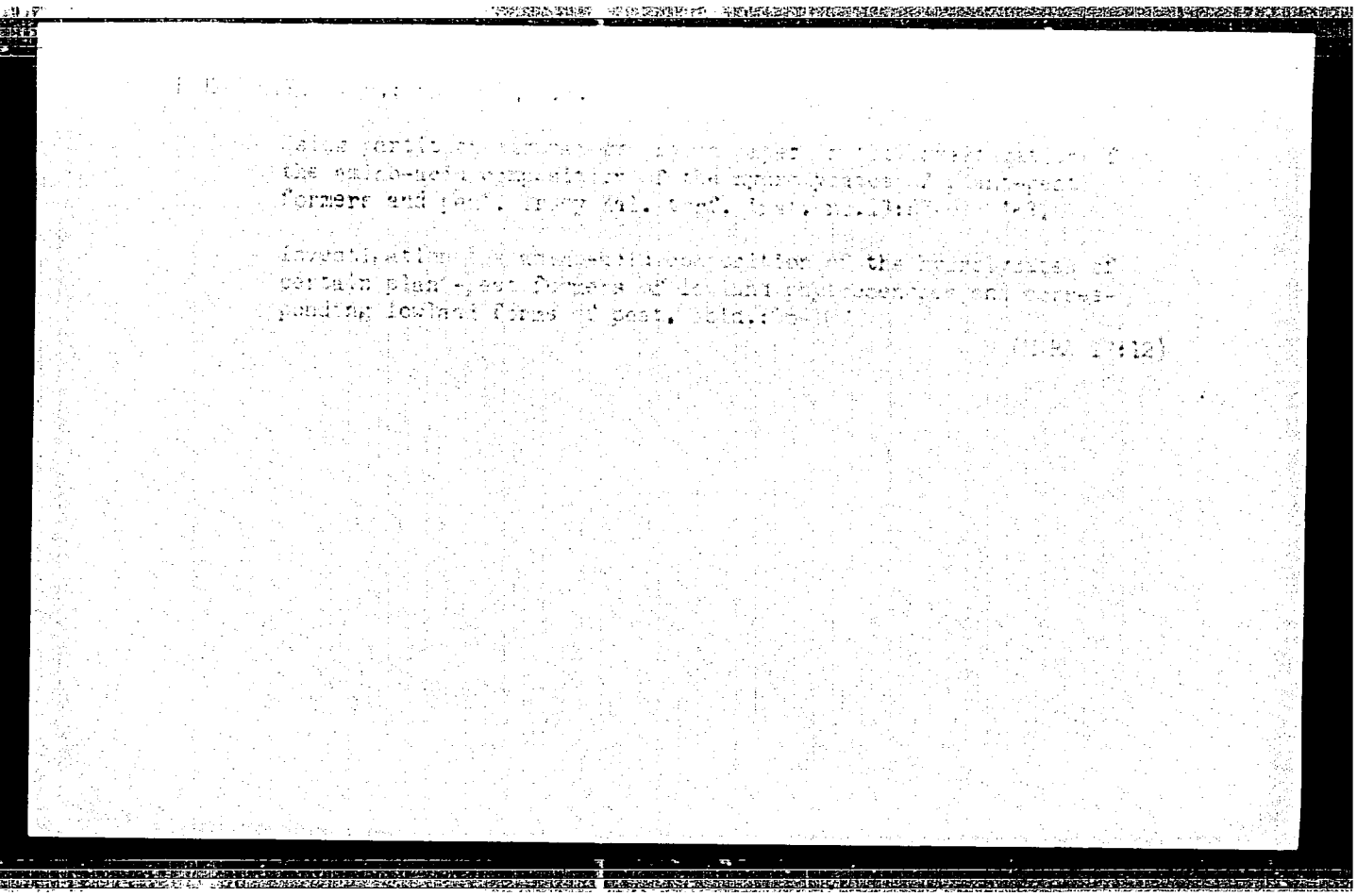
12 - 6N2P tube.

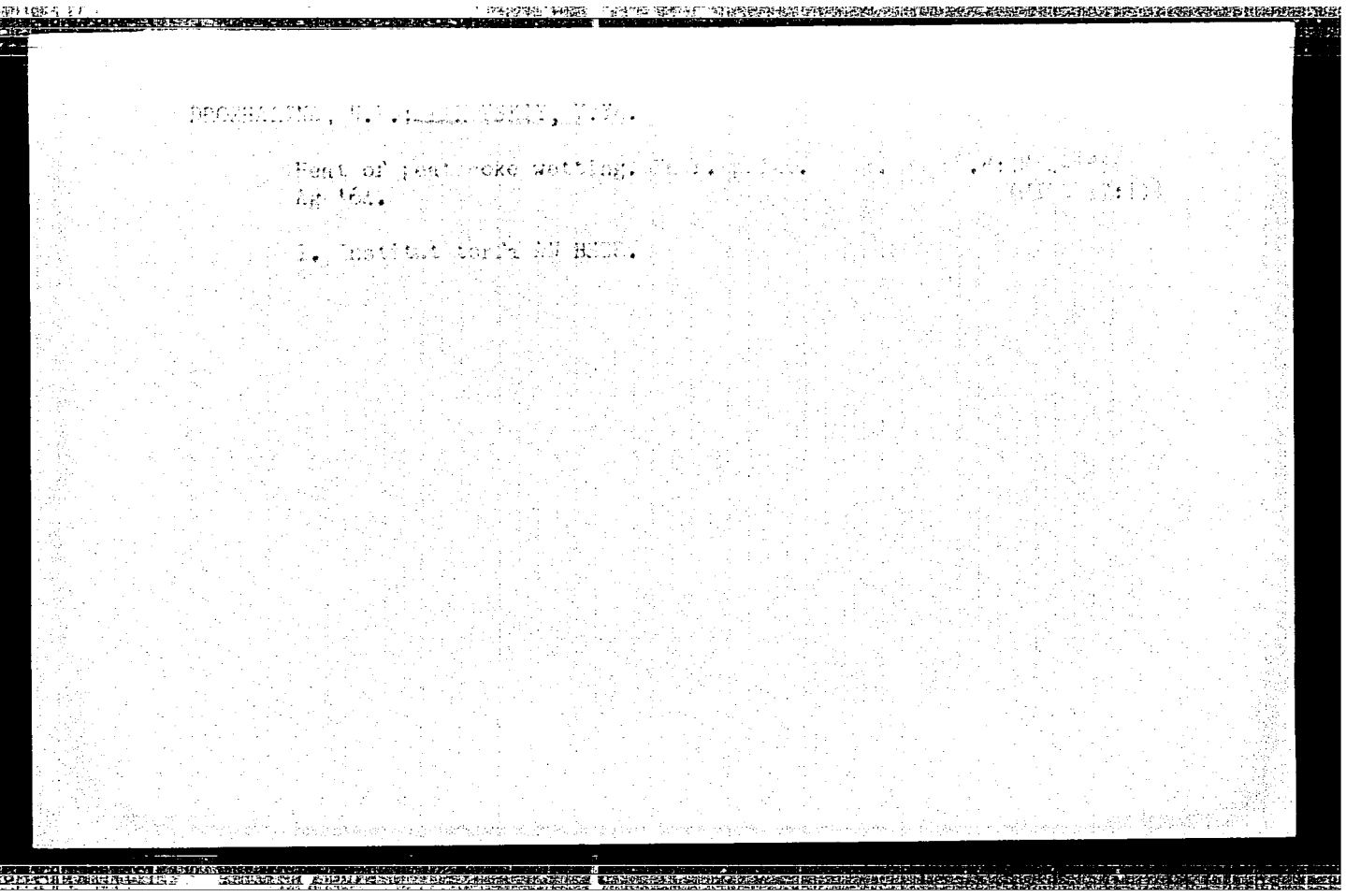
Card 6/6

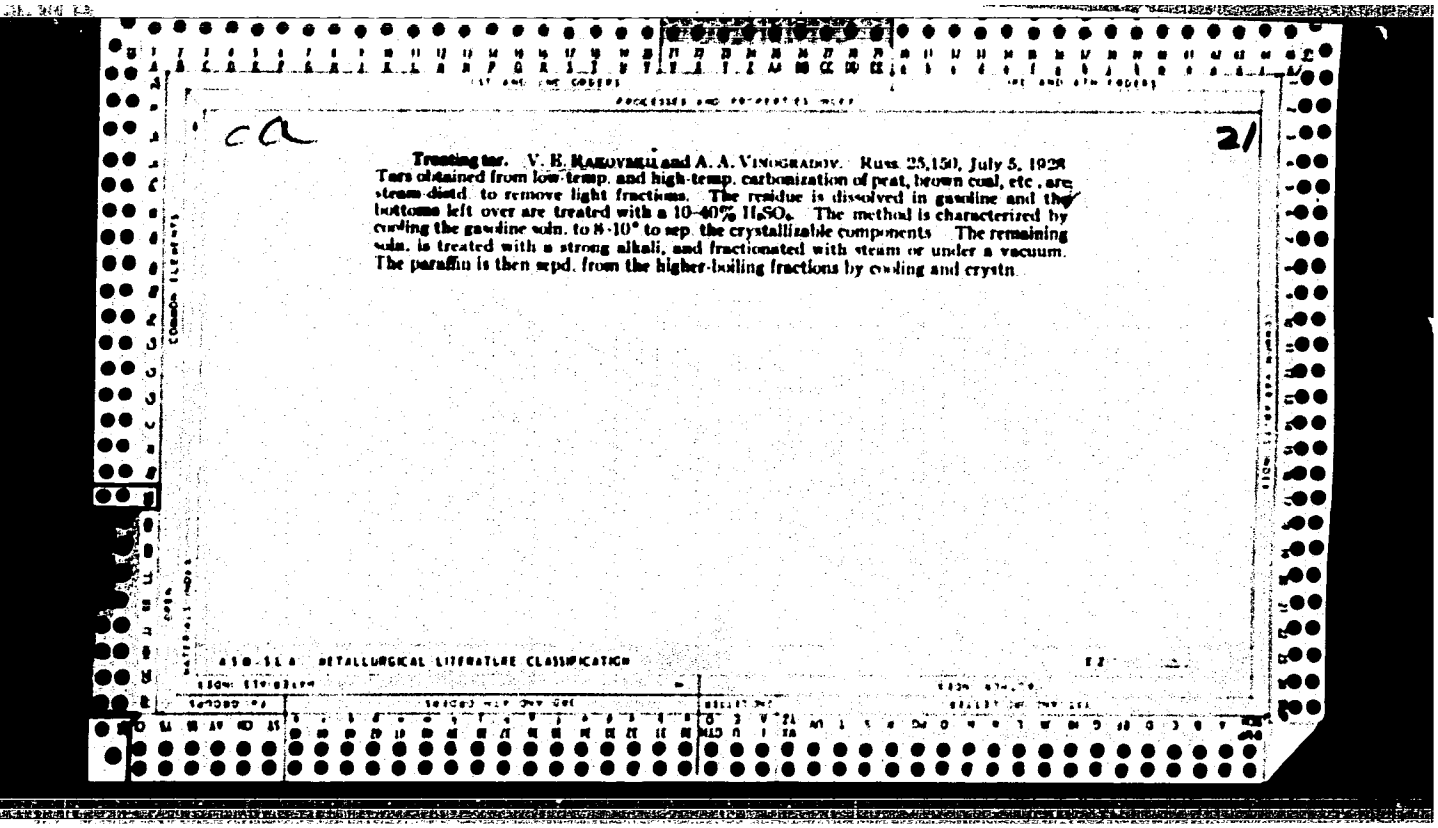
RAKOVSKIY, V.V.

The KZM-6 apparatus for the magnetic recording of sound. Tekh. kino i telev. no.6:63-68 Je '58. (MIRA 11:6)

1. Leningradskiy zavod "Kinap."
(Magnetic recorders and recording)





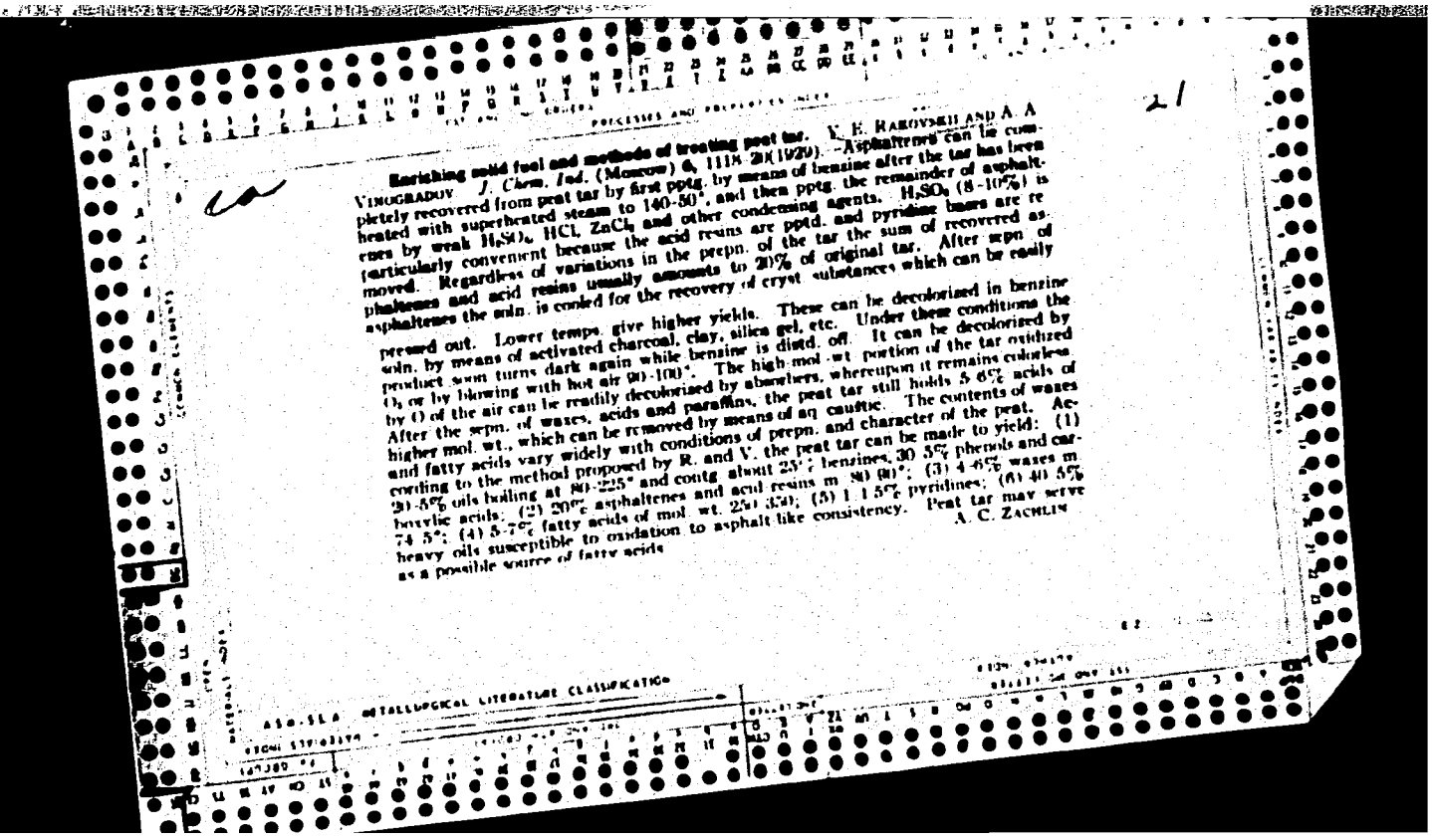


CA

21

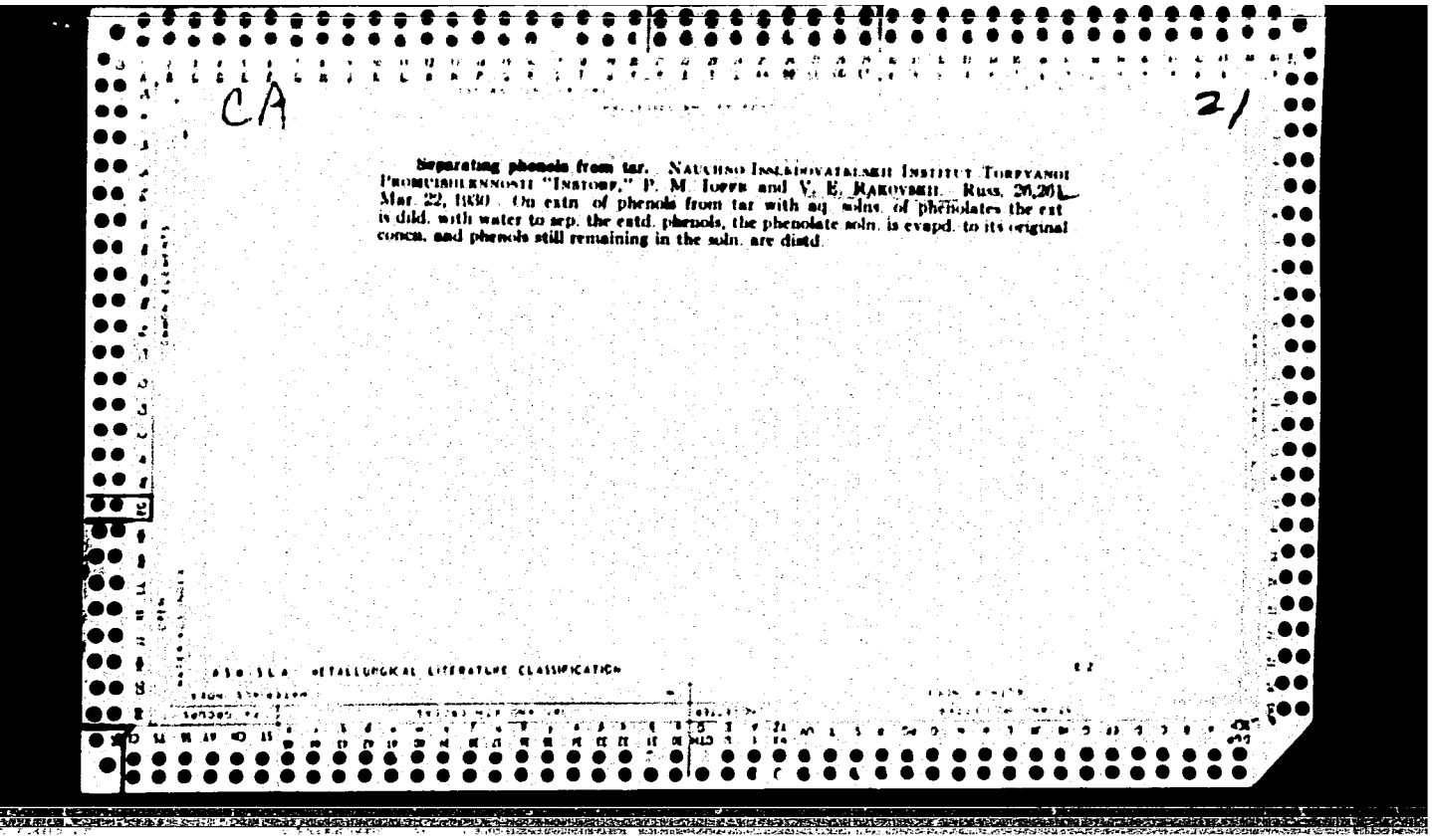
Treating tar. V. B. Kamovskii and A. A. Vinogradov. Russ. 25,150, July 5, 1928. Tars obtained from low-temp. and high-temp. carbonization of peat, brown coal, etc., are steam-distd. to remove light fractions. The residue is dissolved in gasoline and the bottoms left over are treated with a 10–40% H_2SO_4. The method is characterized by cooling the gasoline soln. to 8–10° to sep. the crystallizable components. The remaining soln. is treated with a strong alkali, and fractionated with steam or under a vacuum. The paraffin is then sepd. from the higher-boiling fractions by cooling and crystn.

A10-51A METALLURGICAL LITERATURE CLASSIFICATION



Enriching solid fuel and methods of treating peat tar. V. E. RAKOVSKII AND A. A. VINOGRADOV *J. Chem. Ind.* (Moscow) 6, 1118-20(1929). —Asphaltenes can be completely recovered from peat tar by first pptg. by means of benzine after the tar has been heated with superheated steam to 140-50°, and then pptg. the remainder of asphaltenes by weak H_2SO_4, HCl, $ZnCl_2$ and other condensing agents. H_2SO_4 (8-10%) is particularly convenient because the acid resins are pptd. and pyridine bases are removed. Regardless of variations in the prepn. of the tar the sum of recovered asphaltenes and acid resins usually amounts to 20% of original tar. After sepn. of asphaltenes the soln. is cooled for the recovery of cryst. substances which can be easily pressed out. Lower temps. give higher yields. These can be decolorized in benzine soln. by means of activated charcoal, clay, silica gel, etc. Under these conditions the product soon turns dark again while benzine is distd. off. It can be decolorized by O_3 or by blowing with hot air 90-100°. The high-mol.-wt. portion of the tar oxidized by O_2 of the air can be readily decolorized by absorbers, whereupon it remains colorless. After the sepn. of waxes, acids and paraffins, the peat tar still holds 5-6% acids of higher mol. wt., which can be removed by means of aq. caustic. The contents of waxes and fatty acids vary widely with conditions of prepn. and character of the peat. According to the method proposed by R. and V. the peat tar can be made to yield: (1) 20-55% oils boiling at 80-225° and contg. about 25% benzines, 30-55% phenols and carbylic acids; (2) 20% asphaltenes and acid resins m. 80-90°; (3) 4-6% waxes m. 74-5°; (4) 5-7% fatty acids of mol. wt. 250-350; (5) 1-15% pyridines; (6) 40-55% heavy oils susceptible to oxidation to asphalt-like consistency. Peat tar may serve as a possible source of fatty acids.

A. C. ZACHLIN

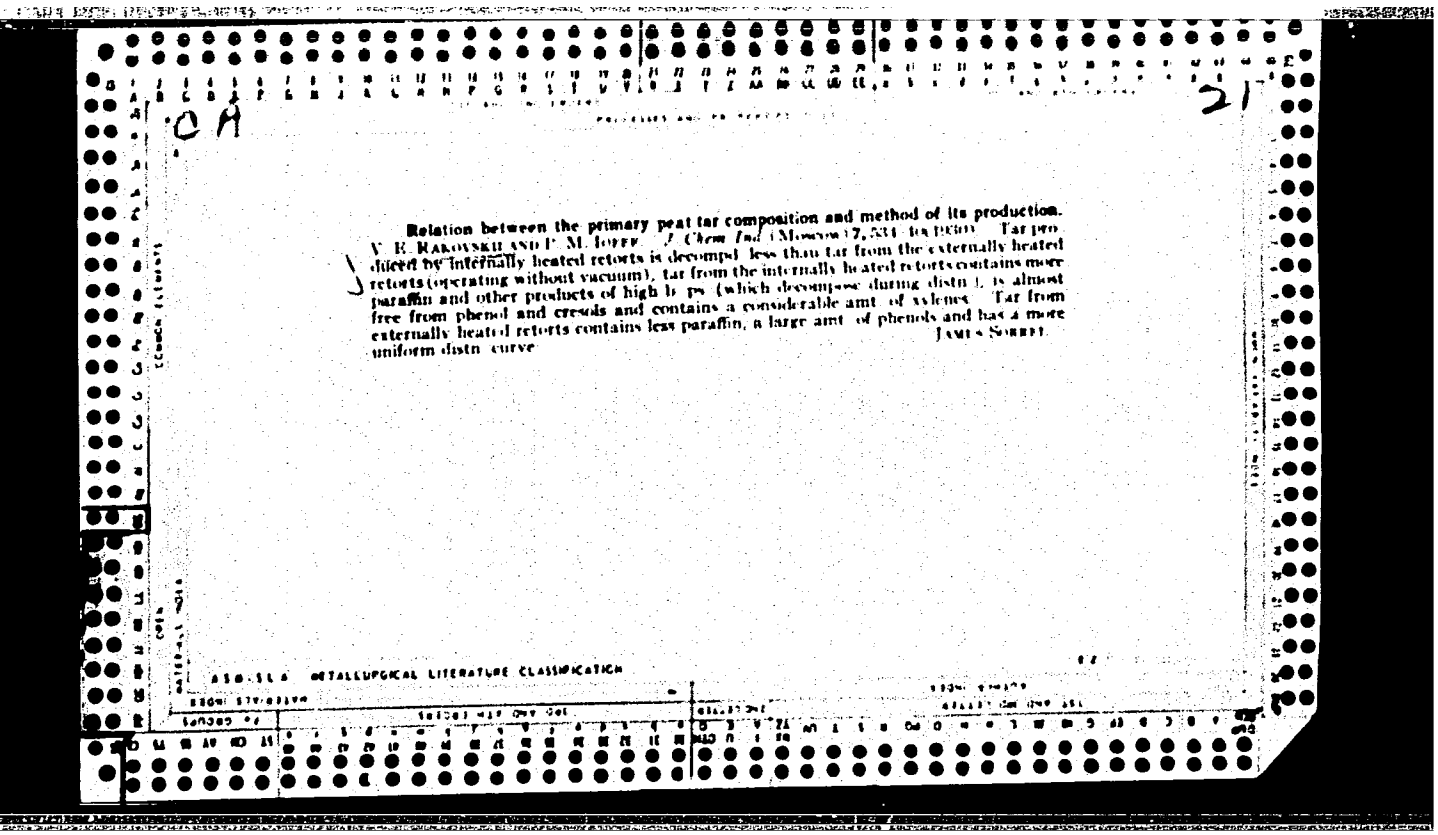


CA

21

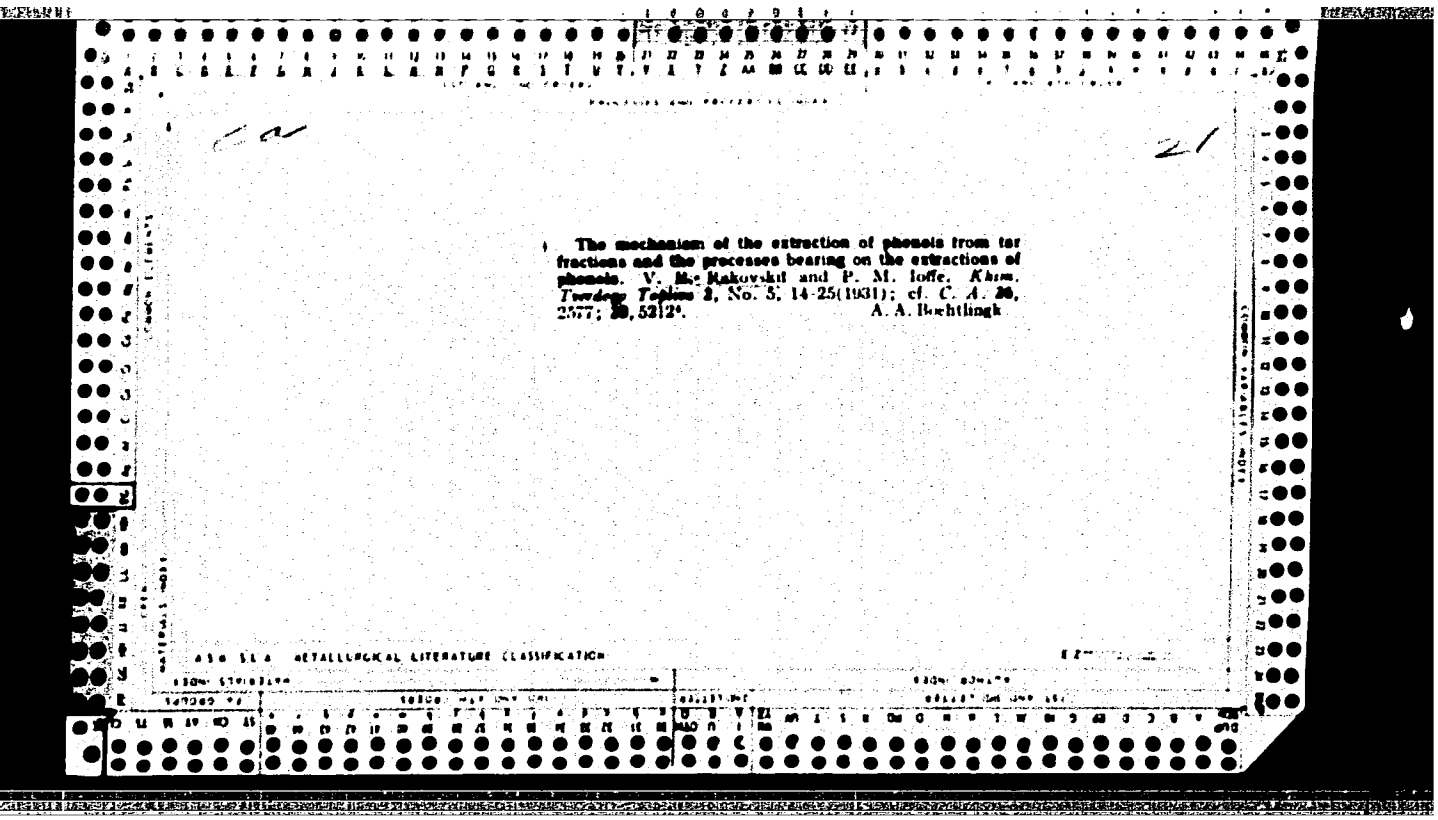
Separating phenols from tar. NAUCHNO ISSLEDOVATELSKII INSTITUT TORFYANOI PROMYSHLENNOSTI "INSTORF." P. M. IOFFE and V. E. RAKOVSKII. Russ. 26,201, Mar. 22, 1939. On extn. of phenols from tar with aq. solns. of phenolates the ext. is dild. with water to sep. the extd. phenols, the phenolate soln. is evapd. to its original concn. and phenols still remaining in the soln. are distd.

A50-51A METALLURGICAL LITERATURE CLASSIFICATION



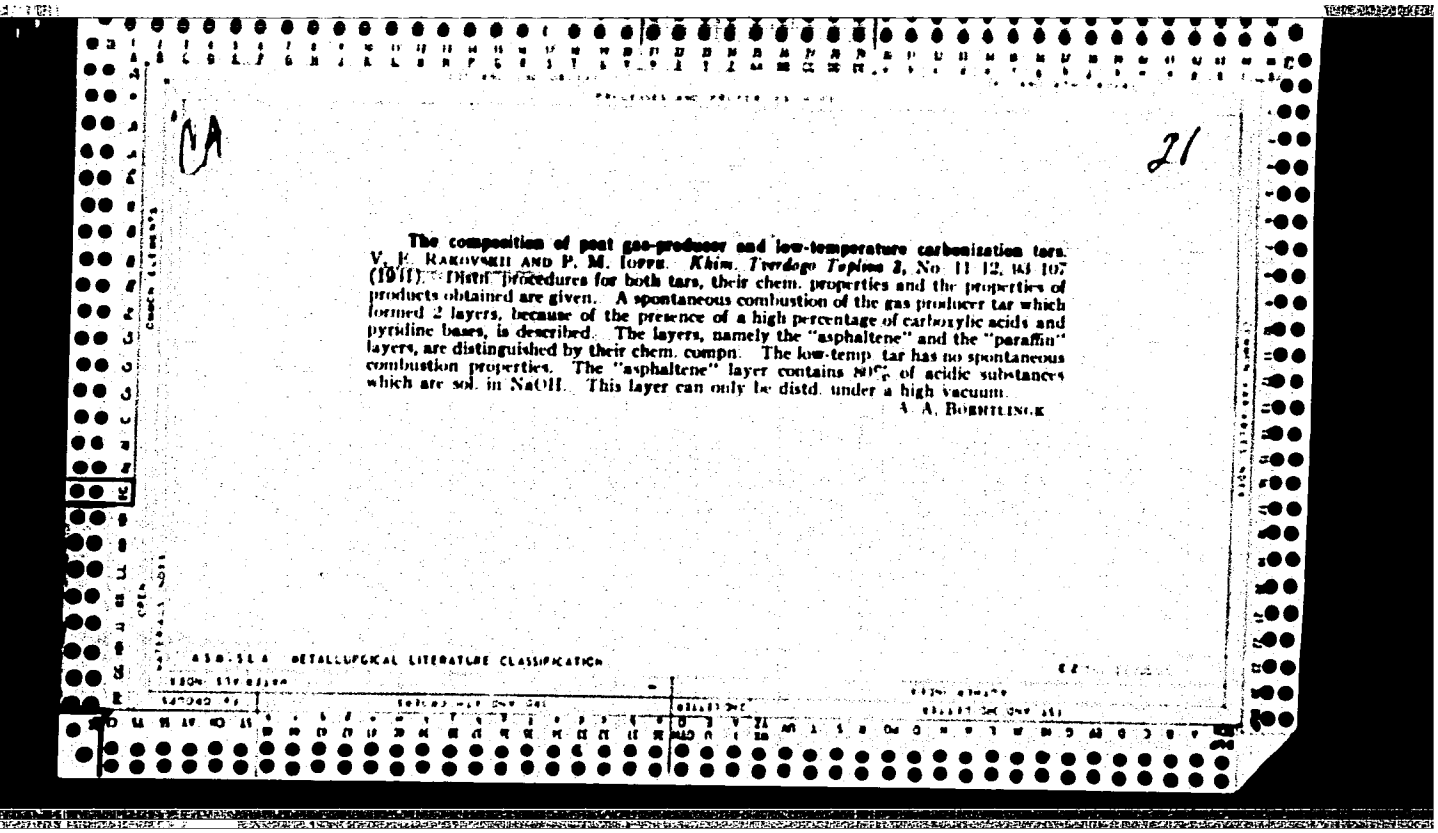
Relation between the primary peat tar composition and method of its production. V. E. RAKOVSKII AND P. M. IOFFE. *J. Chem. Ind.* (Moscow) 7, 531 (in Russian). Tar produced by internally heated retorts is decompd less than tar from the externally heated retorts (operating without vacuum), tar from the internally heated retorts contains more paraffin and other products of high b. ps (which decompose during distn.), is almost free from phenol and cresols and contains a considerable amt. of xylenes. Tar from externally heated retorts contains less paraffin, a large amt. of phenols and has a more uniform distn. curve.

JAMES SORRELL



The mechanism of the extraction of phenols from tar fractions and the processes bearing on the extractions of phenols. V. Ya. Rakovskiĭ and P. M. Ioffe. *Khim. Tverdogo Topliva* 2, No. 5, 14-25(1931); cf. *C. A.* 26, 2577; 26, 5212[9]. A. A. Buchtlingk

ASTIA METALLURGICAL LITERATURE CLASSIFICATION



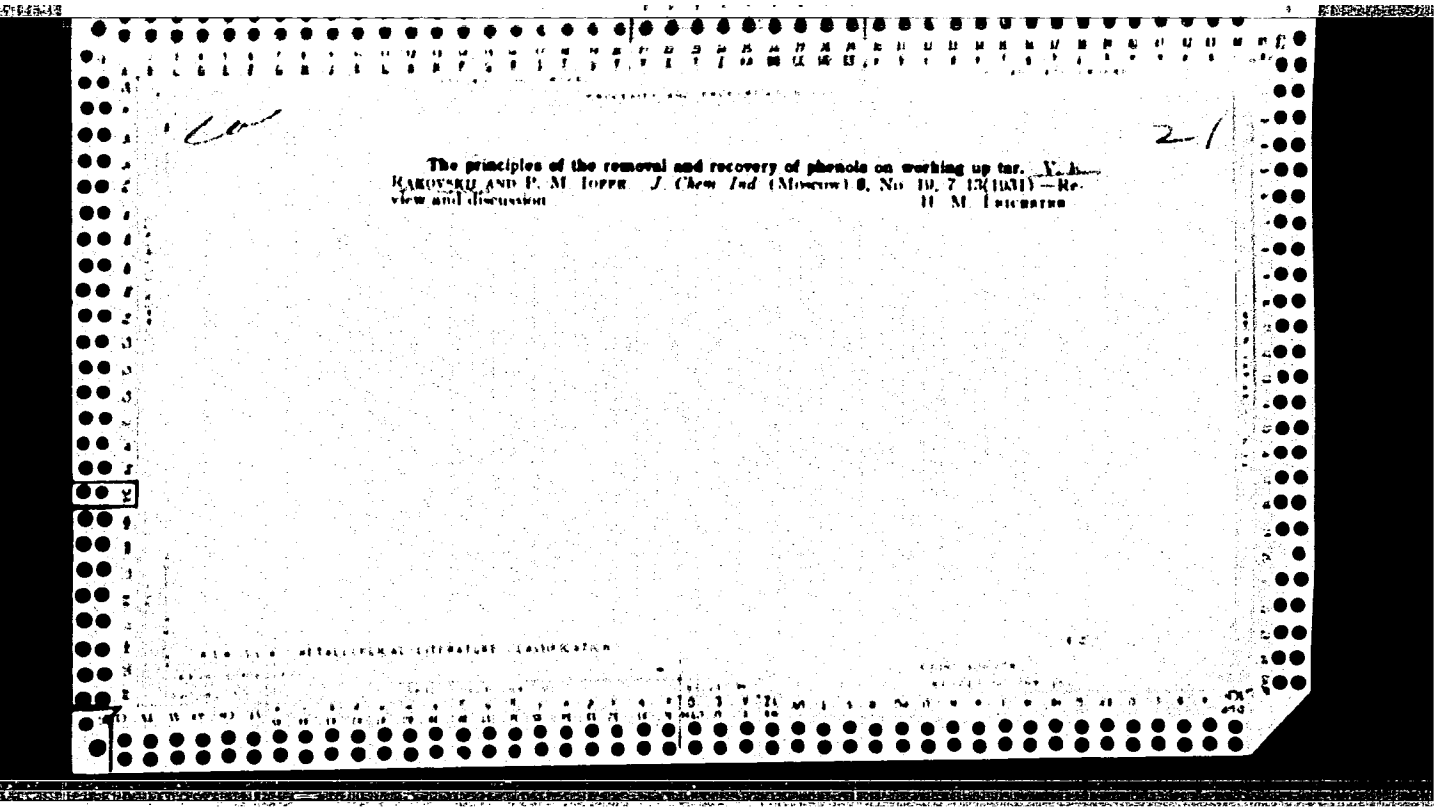
CA

21

The composition of peat gas-producer and low-temperature carbonization tars. V. F. RAKOVSKII AND P. M. IOFFE. *Khim. Tverdogo Topliva* 3, No. 11/12, 93-107 (1931). Distn. procedures for both tars, their chem. properties and the properties of products obtained are given. A spontaneous combustion of the gas producer tar which formed 2 layers, because of the presence of a high percentage of carboxylic acids and pyridine bases, is described. The layers, namely the "asphaltene" and the "paraffin" layers, are distinguished by their chem. compn. The low-temp. tar has no spontaneous combustion properties. The "asphaltene" layer contains 80% of acidic substances which are sol. in NaOH. This layer can only be distd. under a high vacuum.

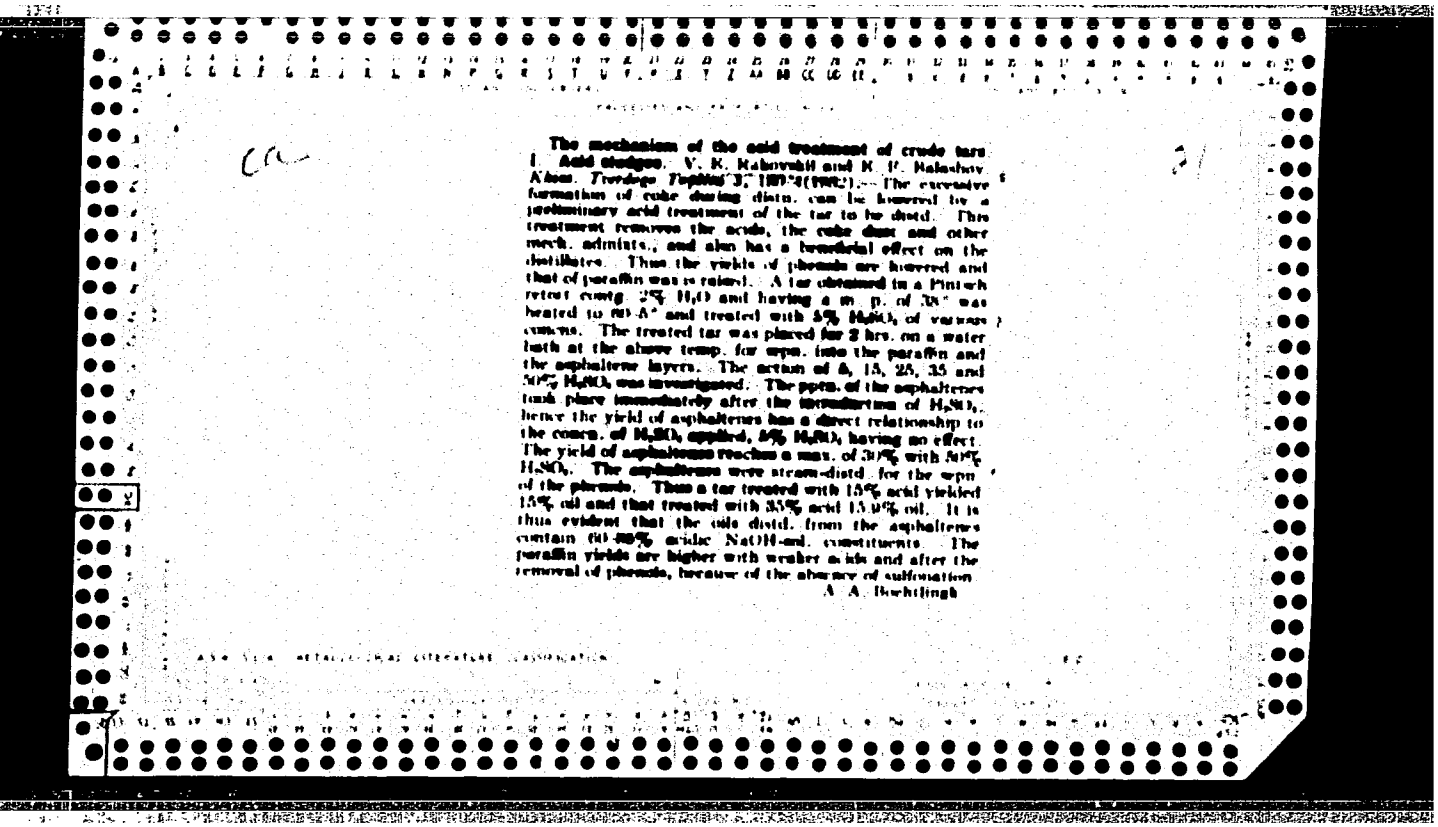
A. A. BOBOVNIKOV

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



The principles of the removal and recovery of phenols on working up tar. Ya. BAKOVKIN AND P. M. TOPPER. *J. Chem. Ind.* (Moscow) 8, No. 10, 7-13(1931).—Review and discussion.

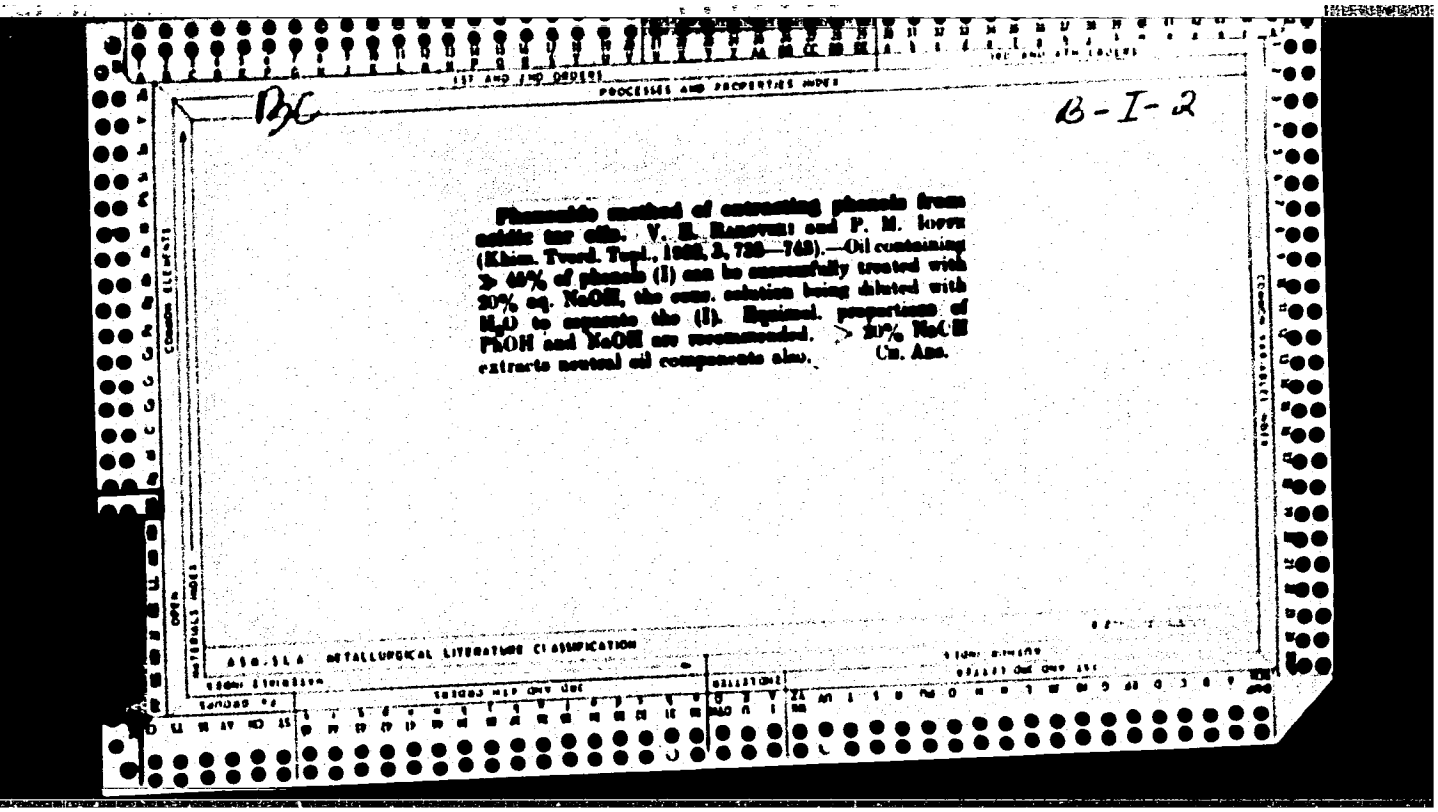
H. M. Leicester



The mechanism of the acid treatment of crude tars. I. Acid sludges. V. K. Mahovskii and K. P. Maloshev. *Khim. Tverdogo Topliva* 3, 187-94(1932).—The excessive formation of coke during distn. can be lessened by a preliminary acid treatment of the tar to be distd. This treatment removes the acids, the coke dust and other mech. admixts., and also has a bactericidal effect on the distillates. Thus the yields of phenols are lowered and that of paraffin wax is raised. A tar obtained in a Pintsch retort contg. 2% H_2O and having a m. p. of 38° was heated to 60-65° and treated with 5% H_2SO_4, of various concns. The treated tar was placed for 2 hrs. on a water bath at the above temp. for sepn. into the paraffin and the asphaltene layers. The actions of 5, 15, 25, 35 and 50% H_2SO_4 was investigated. The ppts. of the asphaltenes took place immediately after the introduction of H_2SO_4, hence the yield of asphaltenes has a direct relationship to the concn. of H_2SO_4 applied, 5% H_2SO_4 having no effect. The yield of asphaltenes reaches a max. of 30% with 50% H_2SO_4. The asphaltenes were steam-distd. for the sepn. of the phenols. Thus a tar treated with 15% acid yielded 15% oil and that treated with 35% acid 15.9% oil. It is thus evident that the oils distd. from the asphaltenes contain 60-80% acidic NaOH-sol. constituents. The paraffin yields are higher with weaker acids and after the removal of phenols, because of the absence of sulfonation.

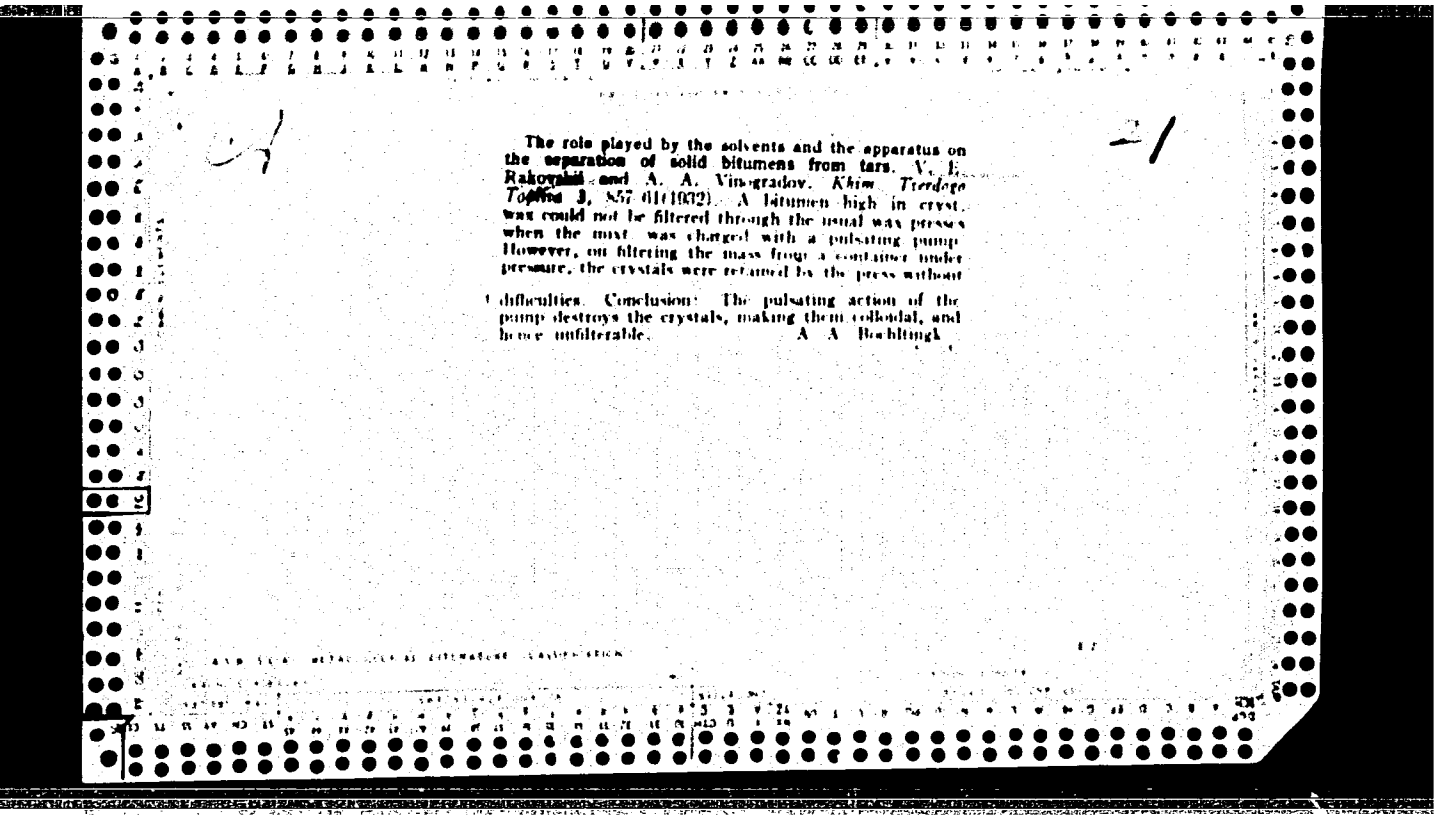
A. A. Berlin

Acid treatment of peat tar. II. The behavior of the acidic components of the tar in the acid treatment. V. E. Rabovskii and E. F. Balashov. *Khim. Tverdogo Topliva* 3, 896-9(1932).—The refined tar freed from asphaltenes was distd. at atm. pressure and the fractions b. below 225°, at 225-50° and 250-75° were used. for the detn. of their acid contents. The contents of acidic oils are lower than those obtained in the distn. of the untreated tar. The refined and unrefined tars were treated with 15% NaOH, the phenols were extd. with C_6H_6, the remaining C_6H_6 was blown off with steam and the phenolates were decompd. with 20% H_2SO_4 and distd. To avoid resinification and oxidation the phenols were protected with a layer of C_6H_6. The acid. acidic parts of the tar were, after the removal of carboxylic acids and after drying, distd. under identical conditions. The yields of acid products and of phenols from the refined and the unrefined tar were almost identical, while the yield of high-boiling products from the refined tar was lower. In the distn. of the acidic products from the crude tar 21% of pitch is obtained (1.80% on the tar), and with the refined tar only 3.12% (0.28% on the tar). A. A. B.

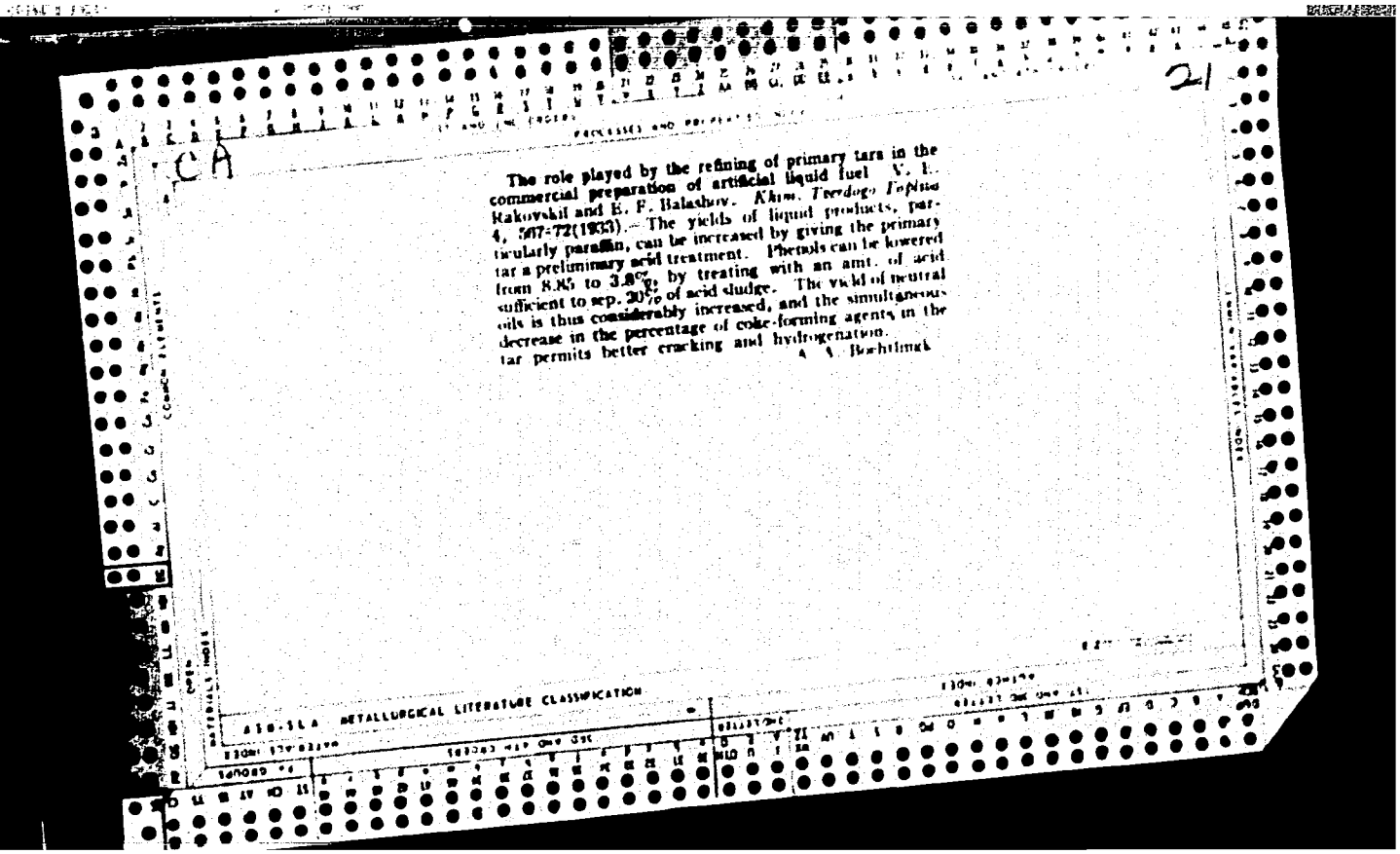


B-I-2

Phenosolv method of extracting phenols from acidic tar oils. V. E. Ranovskii and P. M. Ippen (Khim. Tverd. Topl., 1968, 2, 738—743).—Oil containing > 40% of phenols (I) can be successfully treated with 20% aq. NaOH, the conc. solution being diluted with H_2O to separate the (I). Equimol. proportions of PhOH and NaOH are recommended. > 20% NaOH extracts neutral oil components also. Cu. Abs.



The role played by the solvents and the apparatus on the separation of solid bitumens from tars. V. I. Rakovskii and A. A. Vinogradov. *Khim. Tverdogo Topliva* 3, 857-61(1932). A bitumen high in cryst. wax could not be filtered through the usual wax presses when the mixt. was charged with a pulsating pump. However, on filtering the mass from a container under pressure, the crystals were retained by the press without difficulties. Conclusion: The pulsating action of the pump destroys the crystals, making them colloidal, and hence unfilterable. A. A. Boehlingk

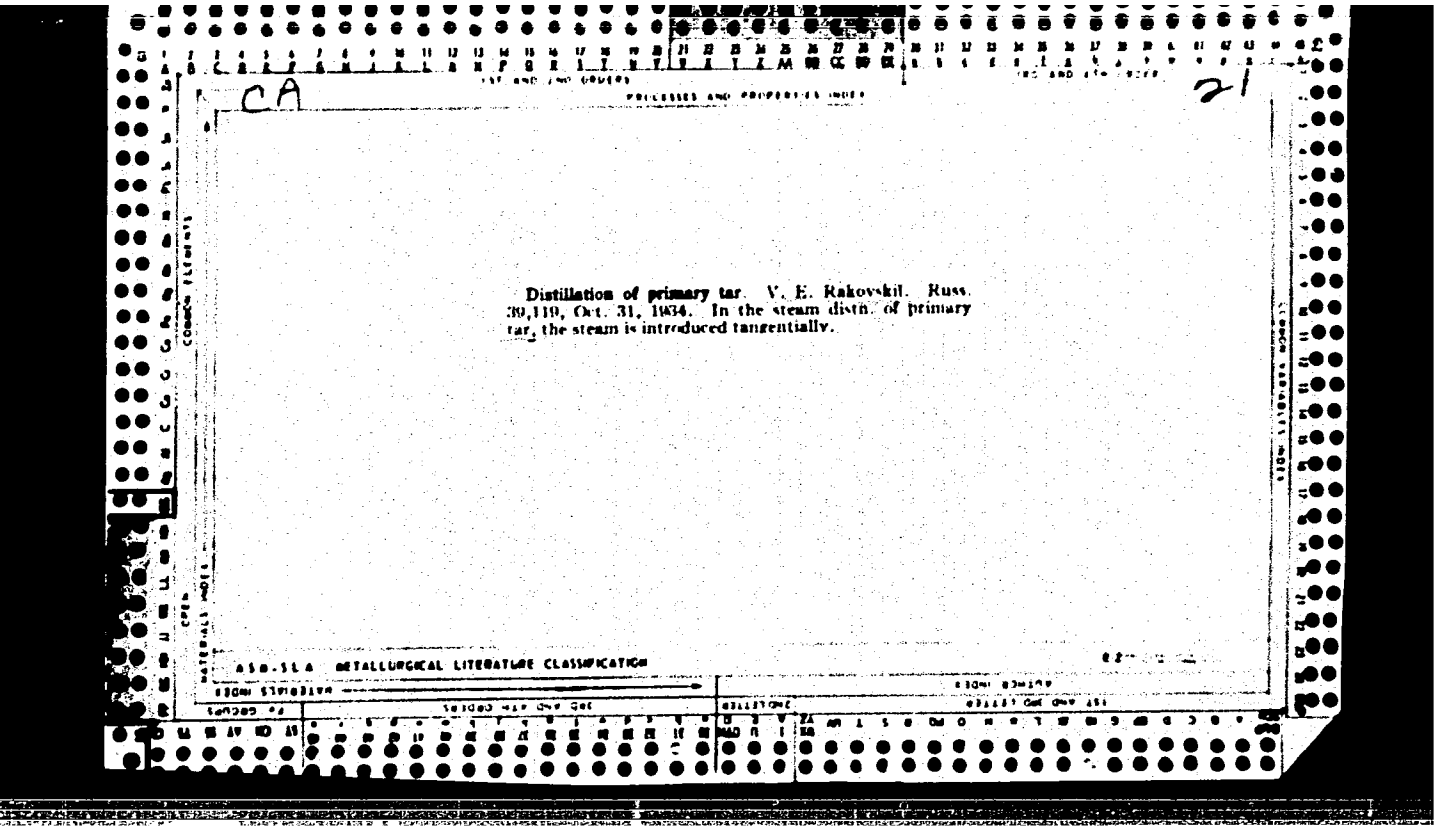


CA

21

The role played by the refining of primary tars in the commercial preparation of artificial liquid fuel. V. I. Rakovskii and B. F. Balashov. *Khim. Tverdogo Topliva* 4, 507-72(1933).—The yields of liquid products, particularly paraffin, can be increased by giving the primary tar a preliminary acid treatment. Phenols can be lowered from 8.85 to 3.8%, by treating with an amt. of acid sufficient to sep. 20% of acid sludge. The yield of neutral oils is thus considerably increased, and the simultaneous decrease in the percentage of coke-forming agents in the tar permits better cracking and hydrogenation.

A. A. Bochinski



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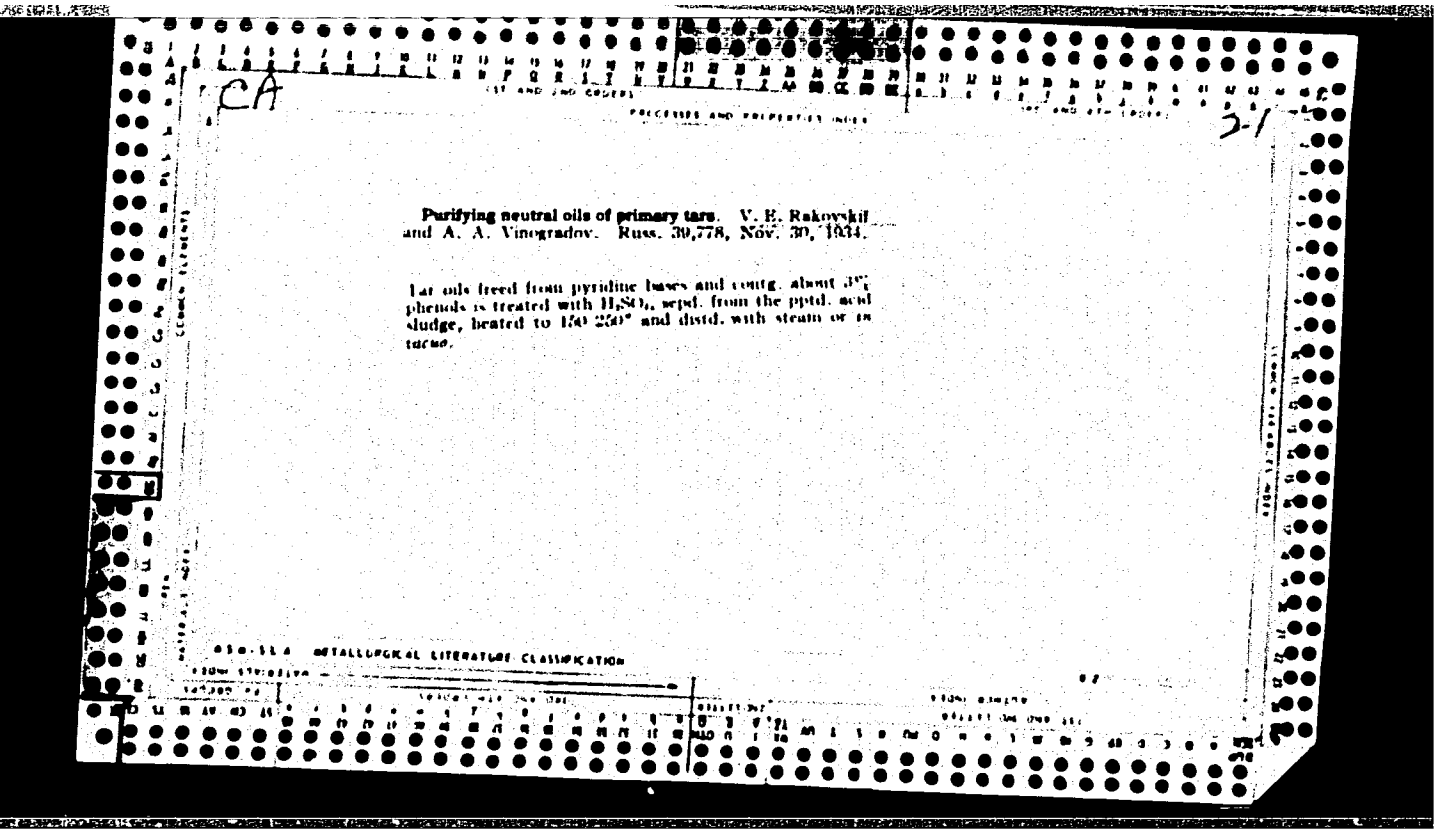
Distillation of primary tar. V. E. Rakovskii. Russ. 39,119, Oct. 31, 1934. In the steam distn. of primary tar, the steam is introduced tangentially.

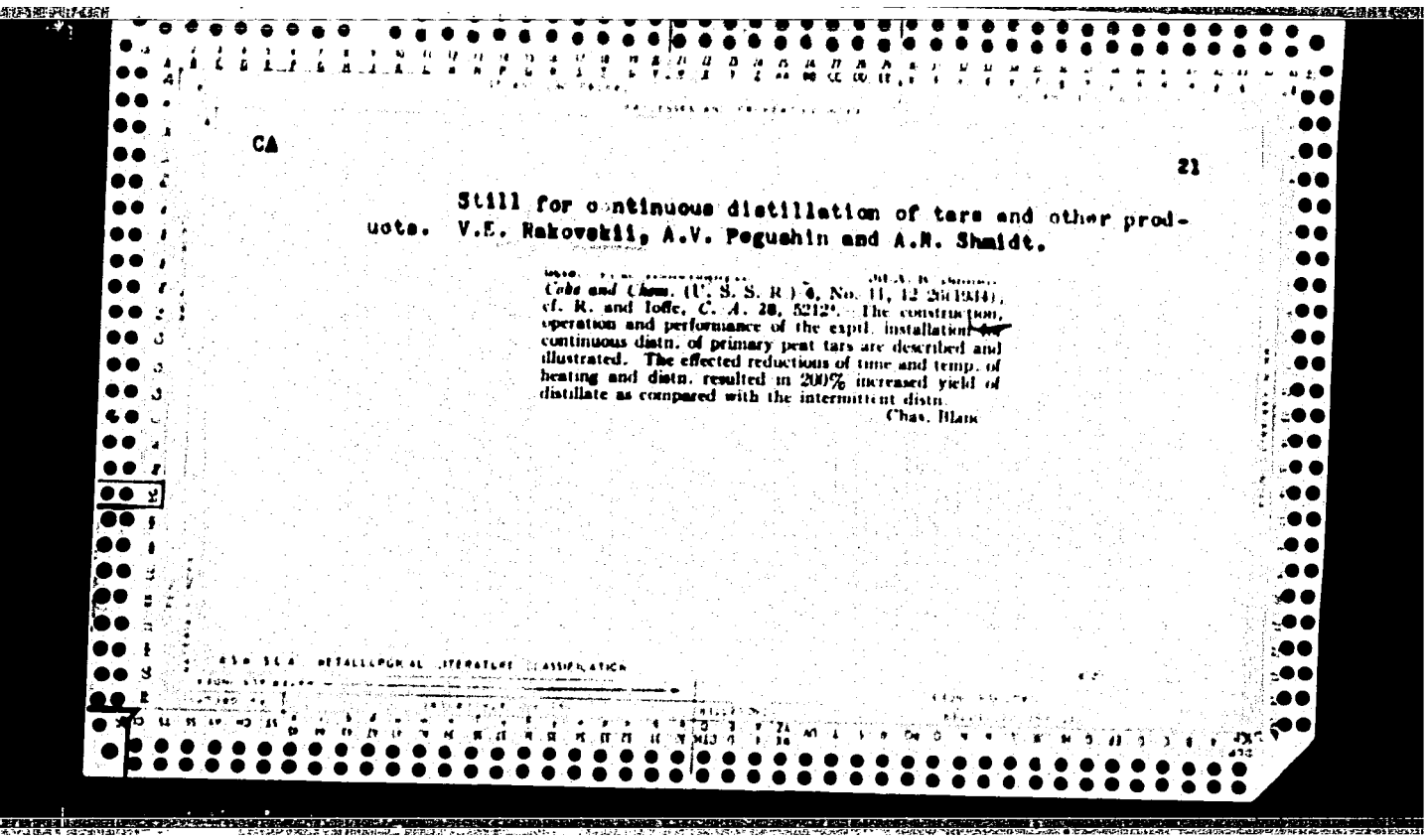


CA

3-1

Purifying neutral oils of primary tars. V. E. Rakovskii and A. A. Vinogradov. Russ. 39,778, Nov. 30, 1934.

Tar oils freed from pyridine bases and contg. about 3% phenols is treated with H_2SO_4, sepd. from the ppted. acid sludge, heated to 150-250° and distd. with steam or in vacuo.



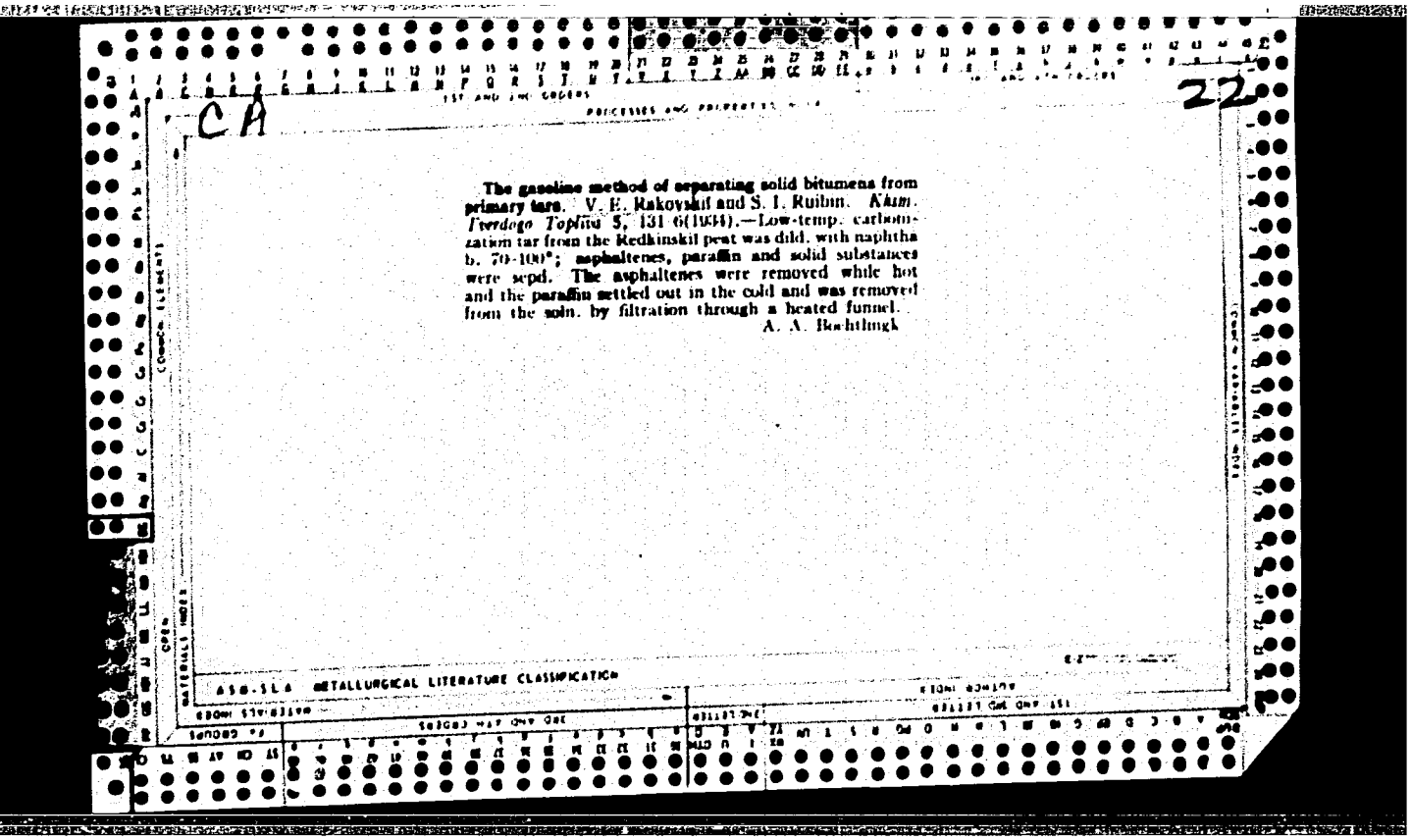
CA

21

Still for continuous distillation of tars and other products. V.E. Rakovskii, A.V. Pegushin and A.N. Shmidt.

Koks and Khim. (U. S. S. R.) 6, No. 11, 12 (1936); cf. R. and Ioffe, *C. A.* 28, 5212⁹. The construction, operation and performance of the expil. installation for continuous distn. of primary peat tars are described and illustrated. The effected reductions of time and temp. of heating and distn. resulted in 200% increased yield of distillate as compared with the intermittent distn.

Chas. Blanc

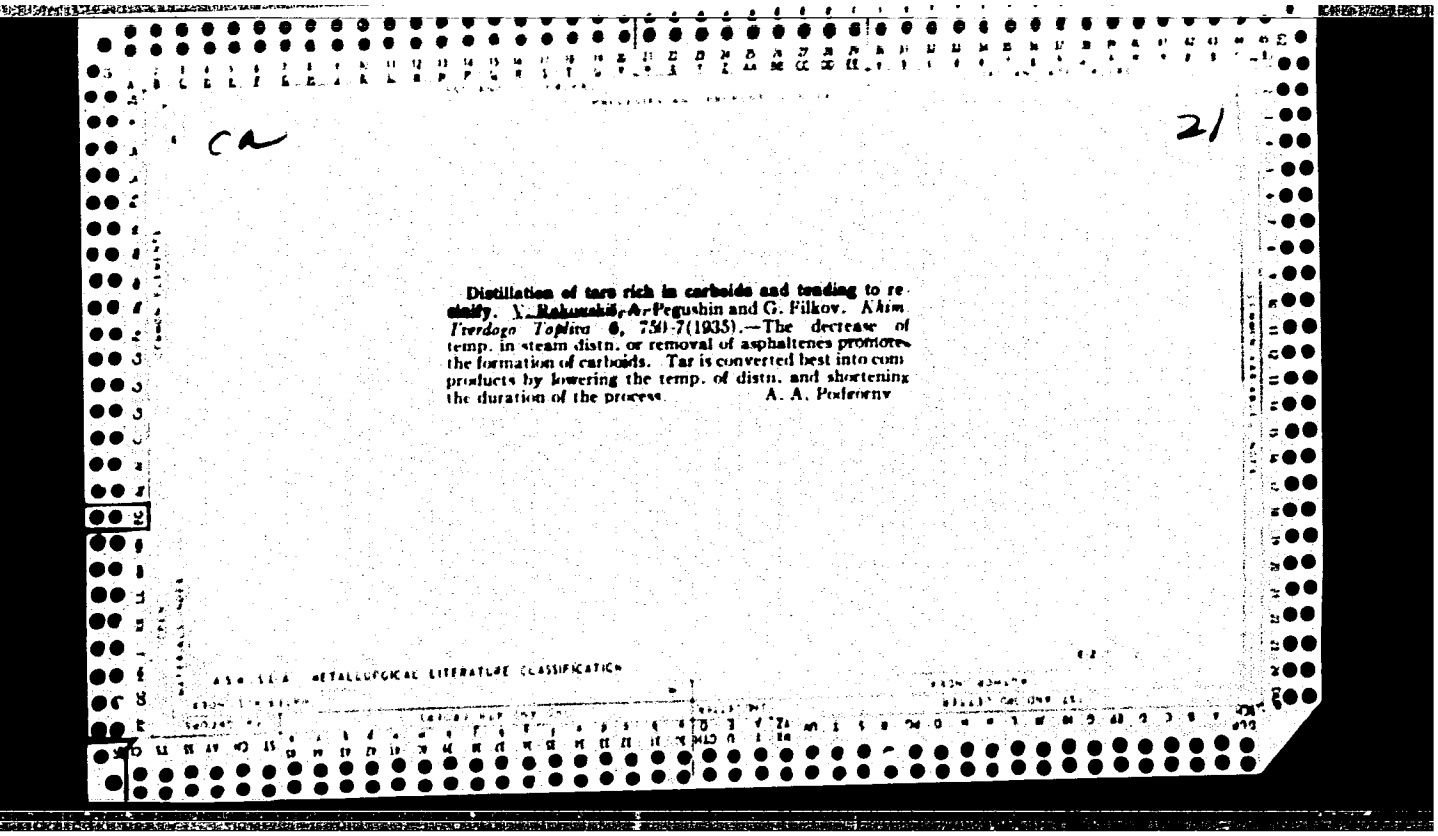


CA

22

The gasoline method of separating solid bitumens from primary tars. V. E. Rakovskii and S. I. Ruibin. *Khim. Tverdogo Topliva* 5, 131-6(1934).—Low-temp. carbonization tar from the Redkinskii peat was dild. with naphtha b. 70-100°; asphaltenes, paraffin and solid substances were sepd. The asphaltenes were removed while hot and the paraffin settled out in the cold and was removed from the soln. by filtration through a heated funnel.
A. A. Boehtlingk

A58-51A METALLURGICAL LITERATURE CLASSIFICATION

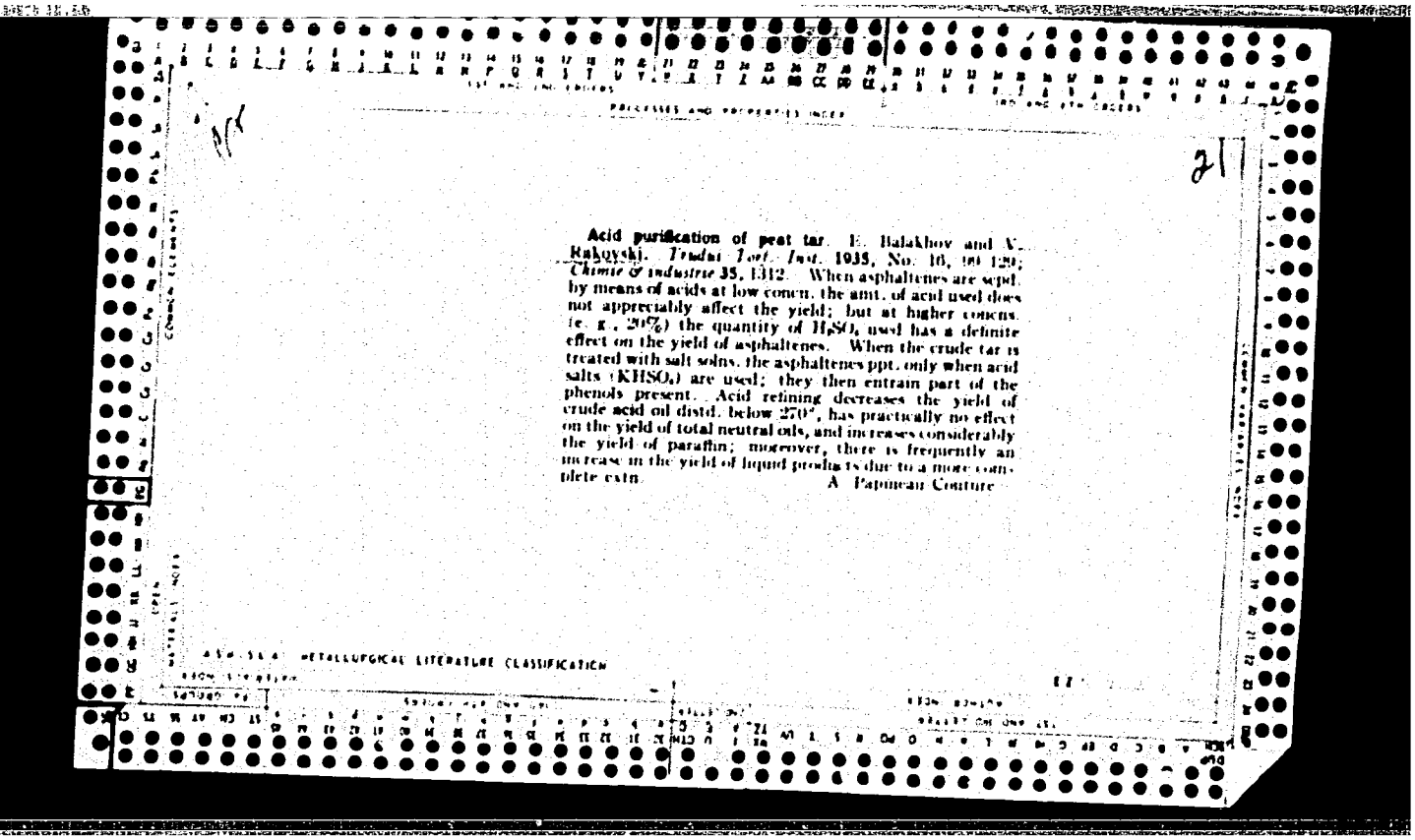


CA

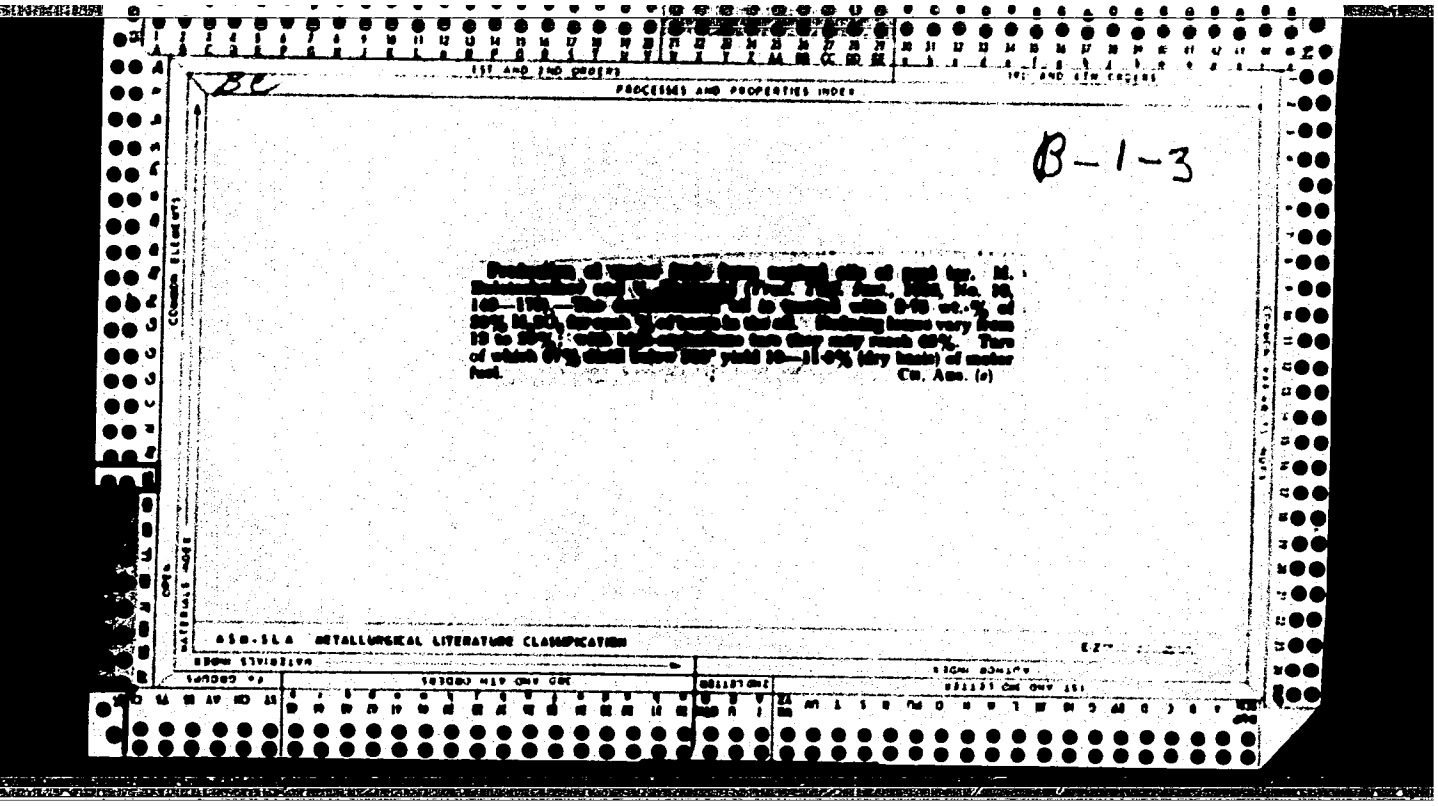
21

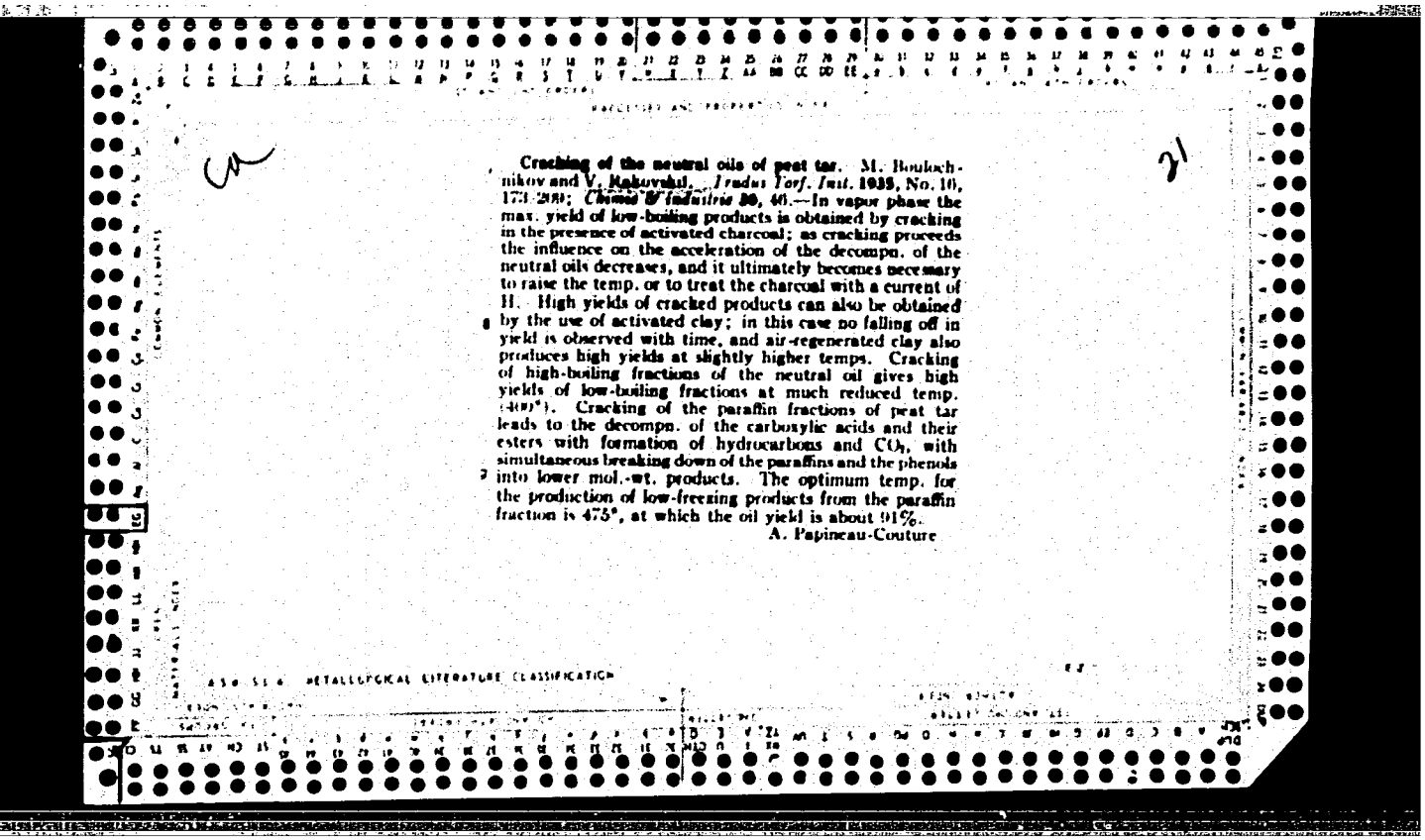
Distillation of tars rich in carboids and tending to re-oxidify. V. Rakusskii, Ar. Pegushin and G. Filkov. *Khim. Tverdogo Topliva* **6**, 750-7(1935).—The decrease of temp. in steam distn. or removal of asphaltenes promotes the formation of carboids. Tar is converted best into coal products by lowering the temp. of distn. and shortening the duration of the process. A. A. Podgorny

ASTIA METALLURGICAL LITERATURE CLASSIFICATION



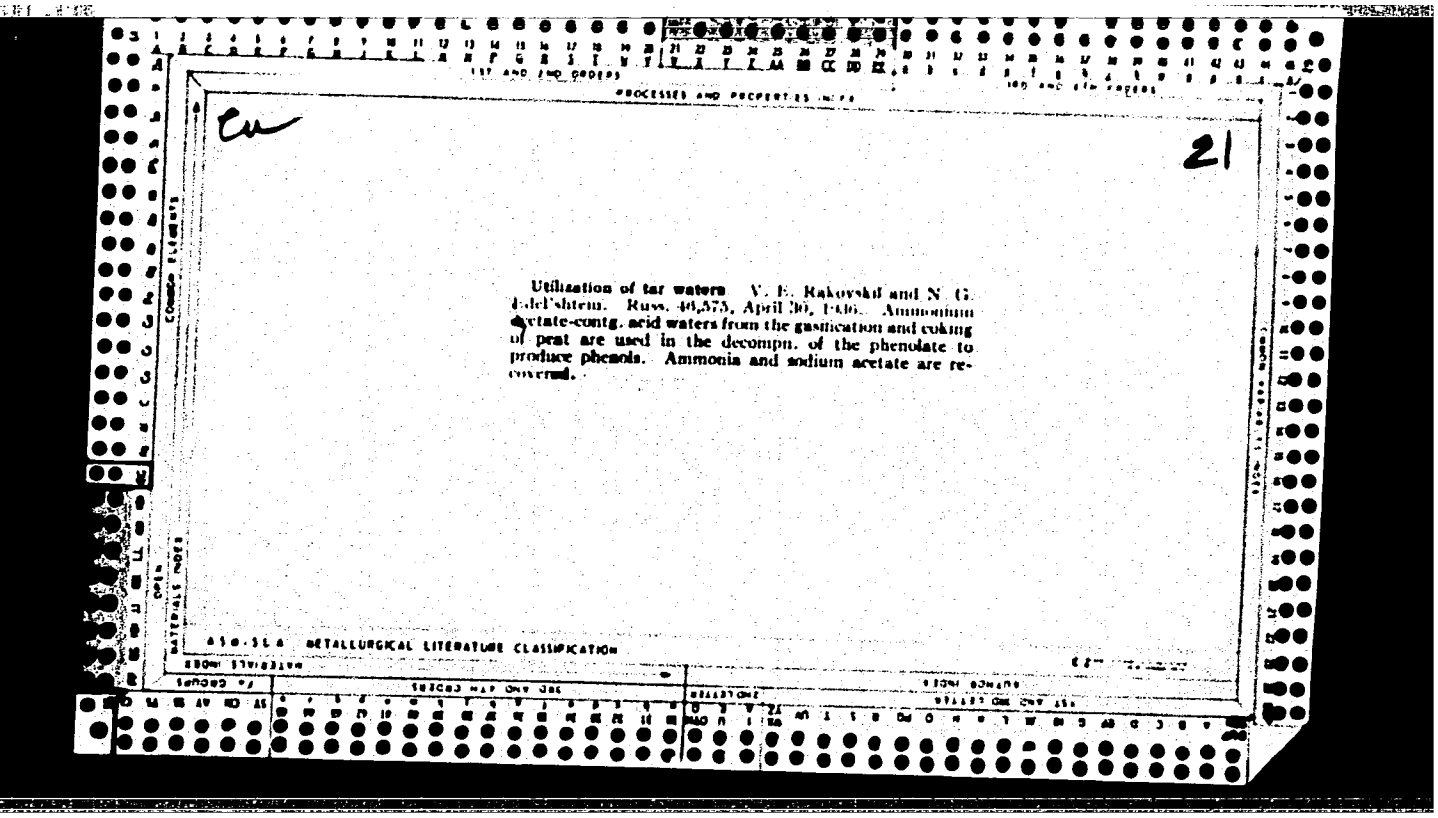
Acid purification of peat tar. L. Balakhov and V. Rakovski. *Trudui Torf. Inst.* 1935, No. 16, 99-129; *Chimie & industrie* **35**, 1312. When asphaltenes are sepd. by means of acids at low concn. the amt. of acid used does not appreciably affect the yield; but at higher concns. (e. g., 20%) the quantity of H_2SO_4 used has a definite effect on the yield of asphaltenes. When the crude tar is treated with salt solns. the asphaltenes ppt. only when acid salts ($KHSO_4$) are used; they then entrain part of the phenols present. Acid refining decreases the yield of crude acid oil distd. below 270°, has practically no effect on the yield of total neutral oils, and increases considerably the yield of paraffin; moreover, there is frequently an increase in the yield of liquid products due to a more complete extn. A. Papineau Couture





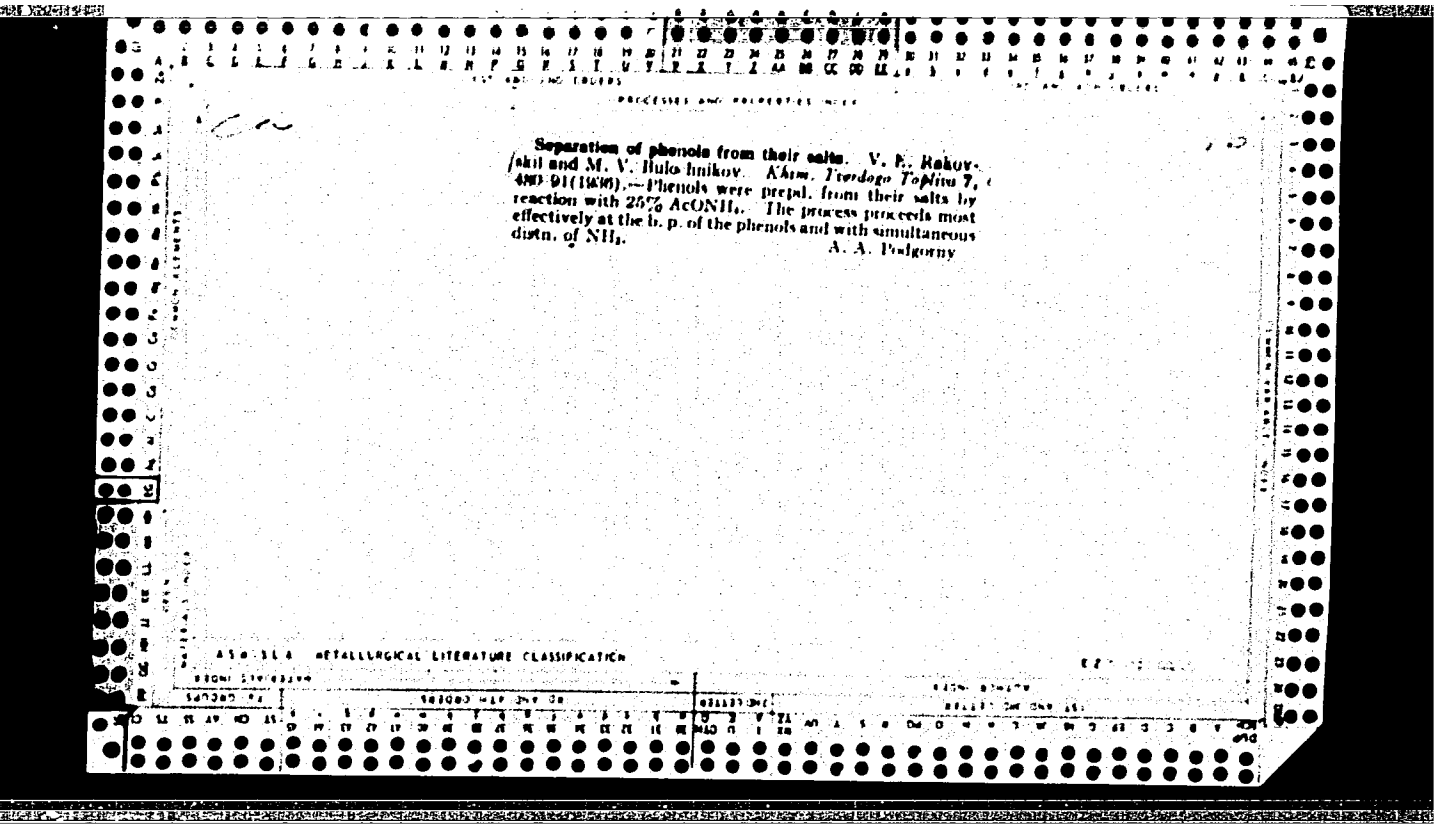
Cracking of the neutral oils of peat tar. M. Boulochnikov and V. Rakovskii. *Trudui Torf. Inst.* 1935, No. 10, 173-200; *Chemie & Industrie* 36, 46.—In vapor phase the max. yield of low-boiling products is obtained by cracking in the presence of activated charcoal; as cracking proceeds the influence on the acceleration of the decompn. of the neutral oils decreases, and it ultimately becomes necessary to raise the temp. or to treat the charcoal with a current of H. High yields of cracked products can also be obtained by the use of activated clay; in this case no falling off in yield is observed with time, and air-regenerated clay also produces high yields at slightly higher temps. Cracking of high-boiling fractions of the neutral oil gives high yields of low-boiling fractions at much reduced temp. (400°). Cracking of the paraffin fractions of peat tar leads to the decompn. of the carboxylic acids and their esters with formation of hydrocarbons and CO_2, with simultaneous breaking down of the paraffins and the phenols into lower mol.-wt. products. The optimum temp. for the production of low-freezing products from the paraffin fraction is 475°, at which the oil yield is about 91%.

A. Papineau-Couture



21

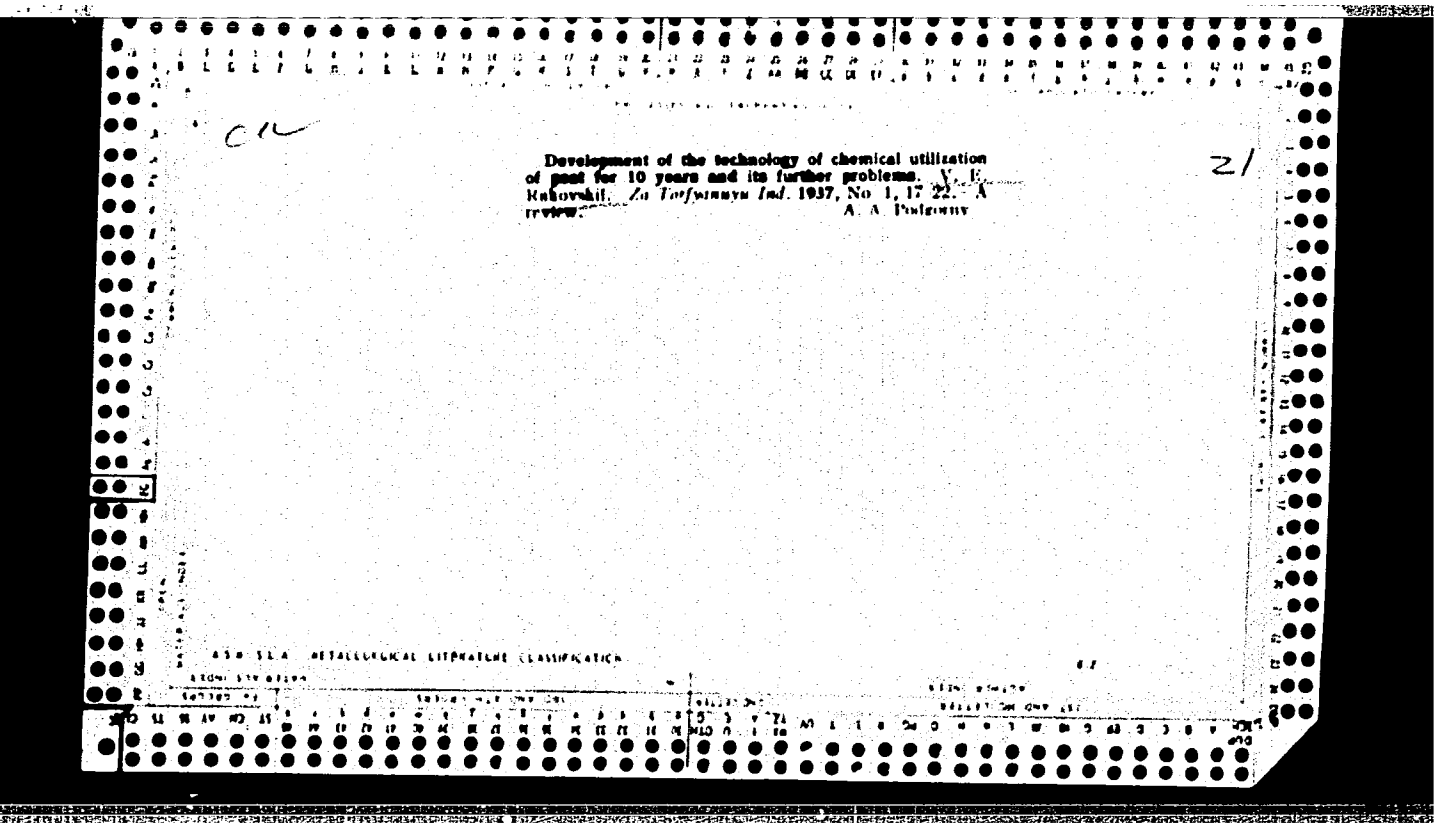
Utilization of tar waters. V. E. Rakovskiĭ and N. G. Lidel'shtein. Russ. 46,575, April 30, 1936. Ammonium acetate-contg. acid waters from the gasification and coking of peat are used in the decompn. of the phenolate to produce phenols. Ammonia and sodium acetate are recovered.



Separation of phenols from their salts. V. P. Rakov-/skii and M. V. Bulo-lnikov. *Khim. Tverdogo Topliva* 7, (4)0-91(1936).—Phenols were prepd. from their salts by reaction with 25% $AcONH_4$. The process proceeds most effectively at the b. p. of the phenols and with simultaneous distn. of NH_3.

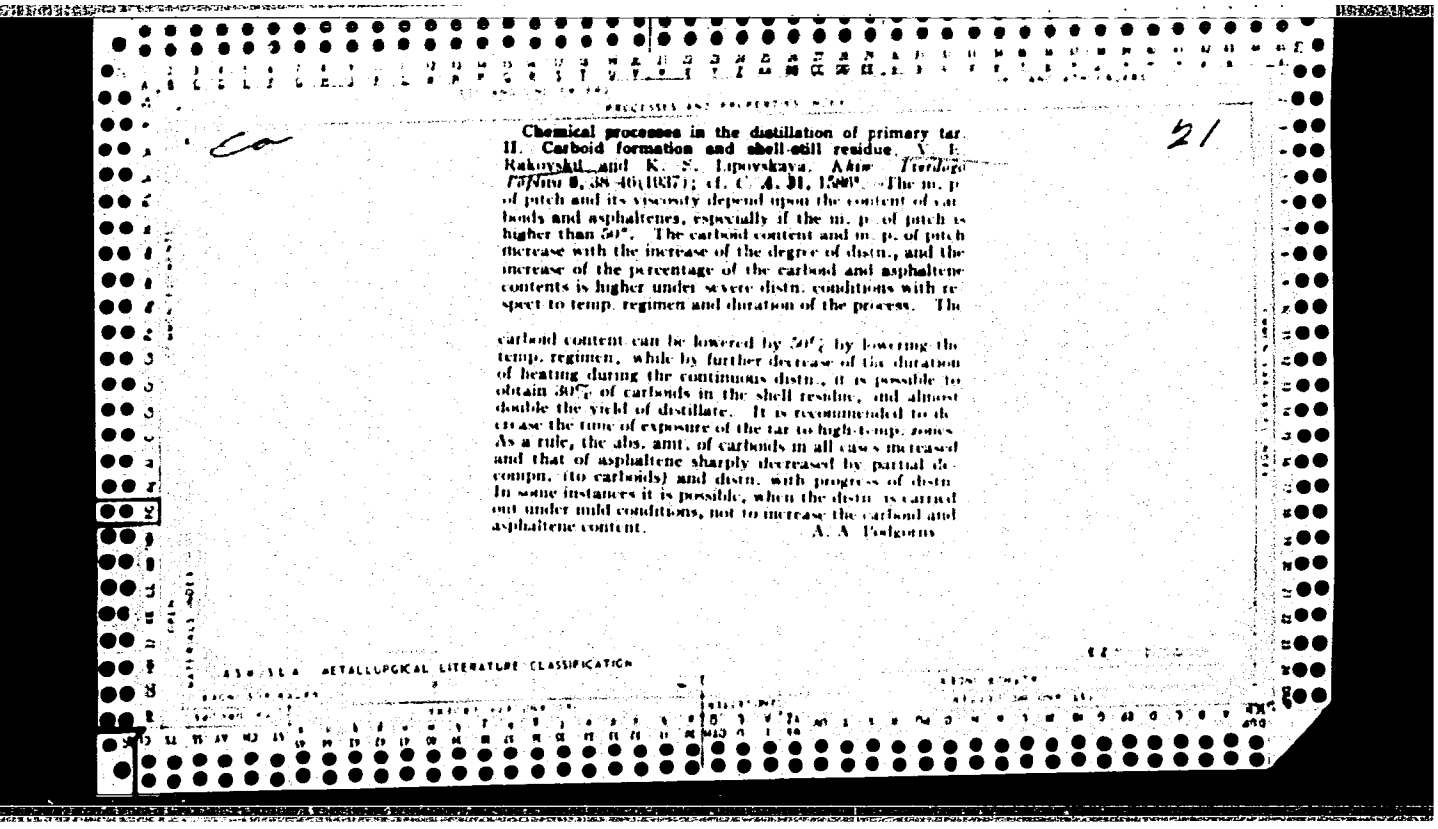
A. A. Podgorny

A 5 0 : 5 L A METALLURGICAL LITERATURE CLASSIFICATION



Development of the technology of chemical utilization of peat for 10 years and its further problems. V. E. Rakovskii. *Za Torfyanuyu Ind.* 1937, No 1, 17-22. A review.

A. A. Pulgunov

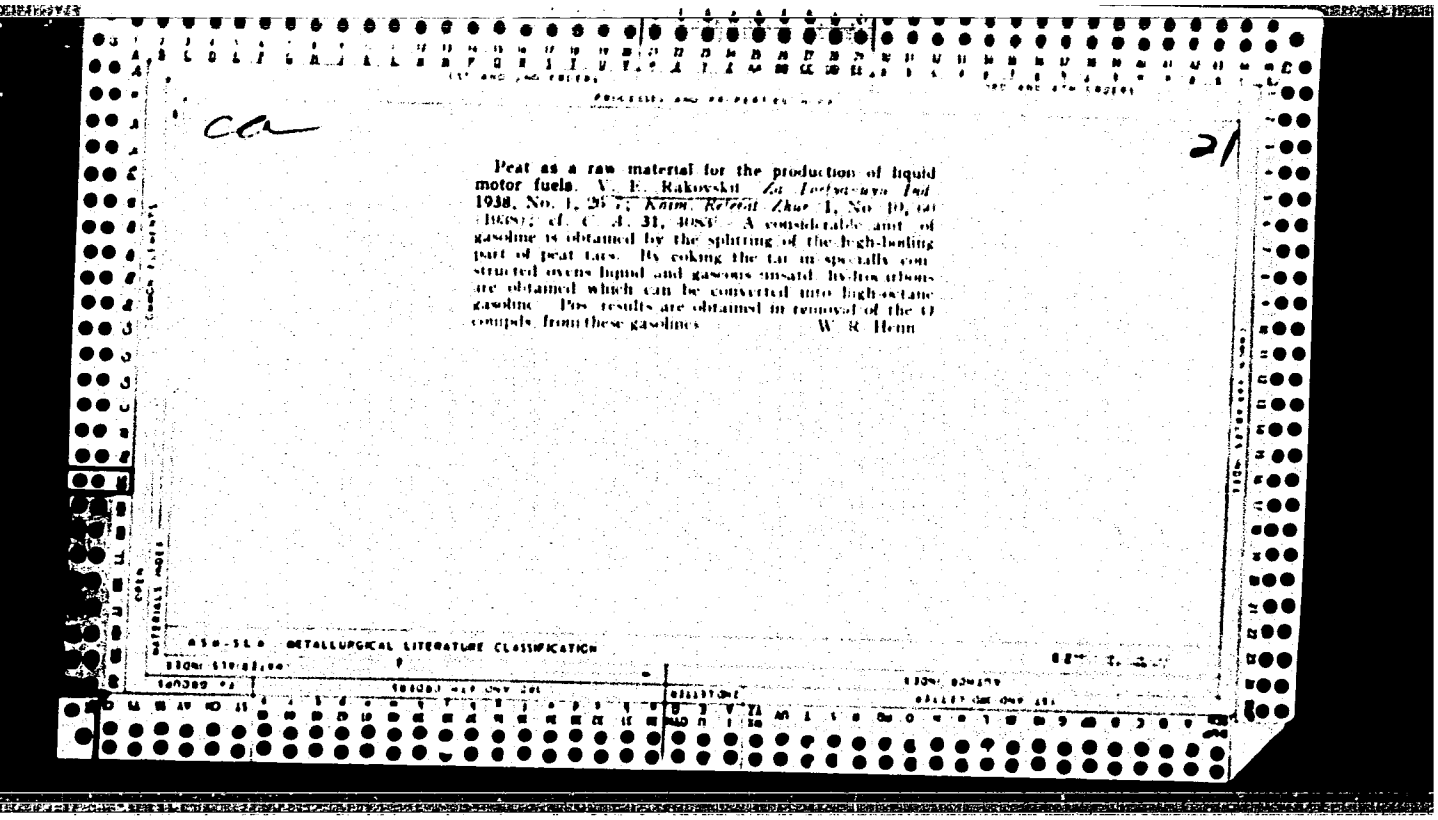


Ca

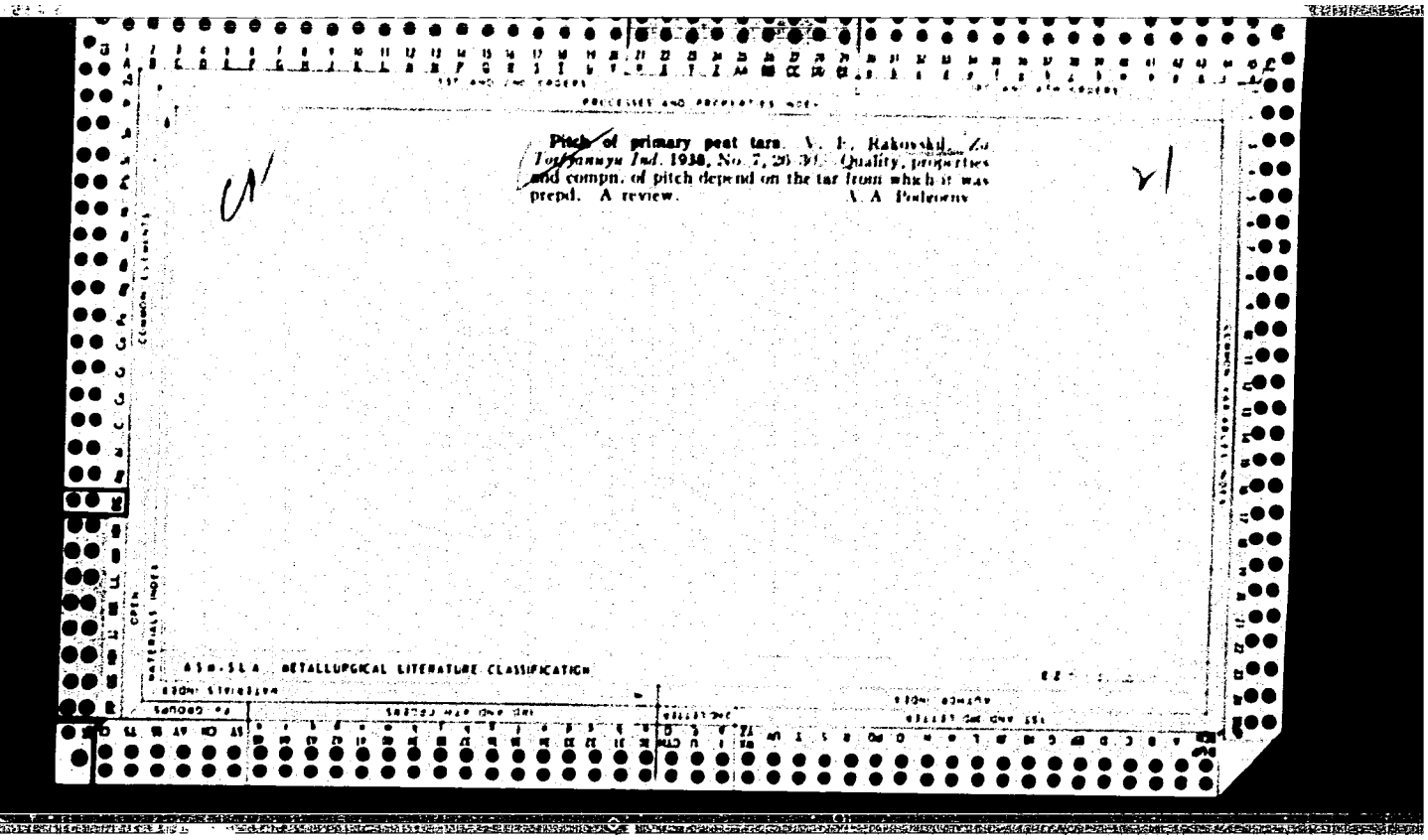
21

Chemical processes in the distillation of primary tar. II. Carboid formation and shell-still residue. Y. I. Rakovskii and K. S. Lapovskaya. *Khim. Tverdogo Topliva* 8, 38-46(1937); cf. *C. A.* 31, 1580⁹. The m. p. of pitch and its viscosity depend upon the content of carboids and asphaltenes, especially if the m. p. of pitch is higher than 50°. The carboid content and m. p. of pitch increase with the increase of the degree of distn., and the increase of the percentage of the carboid and asphaltene contents is higher under severe distn. conditions with respect to temp. regimen and duration of the process. The carboid content can be lowered by 50% by lowering the temp. regimen, while by further decrease of the duration of heating during the continuous distn., it is possible to obtain 80% of carboids in the shell residue, and almost double the yield of distillate. It is recommended to decrease the time of exposure of the tar to high-temp. zones. As a rule, the abs. amt. of carboids in all cases increased and that of asphaltene sharply decreased by partial decompn. (to carboids) and distn. with progress of distn. In some instances it is possible, when the distn. is carried out under mild conditions, not to increase the carboid and asphaltene content. A. A. Polgorus

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

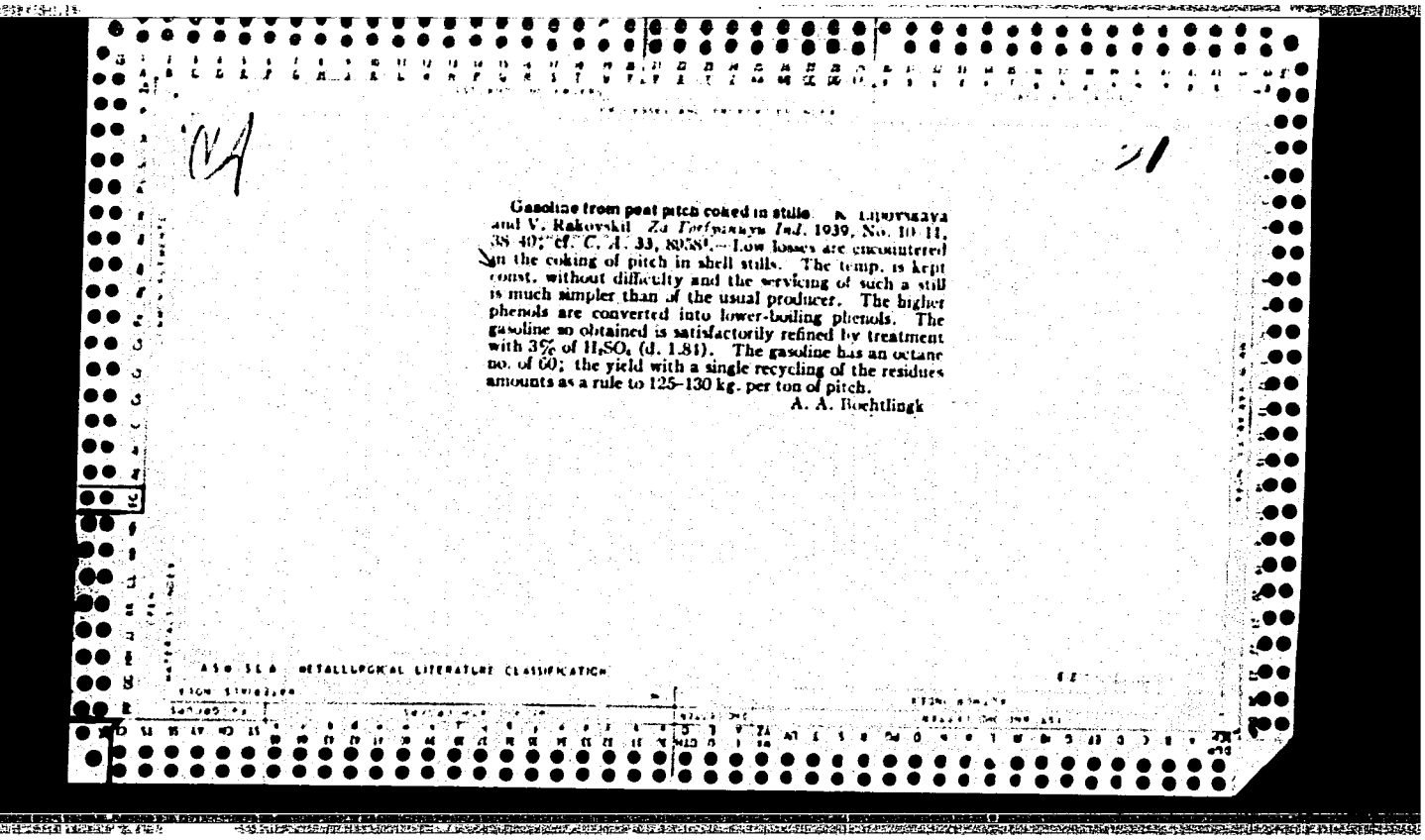


Peat as a raw material for the production of liquid motor fuels. V. F. Rakovskii. *Za Industrializ. Torfa* 1938, No. 1, 25-7; *Khim. Referat. Zhur.* 1, No. 10, 61 (1938); cf. *C. A.* 31, 4088. A considerable amt. of gasoline is obtained by the splitting of the high-boiling part of peat tars. By coking the tar in specially constructed ovens liquid and gaseous unsatd. hydrocarbons are obtained which can be converted into high-octane gasoline. Pos. results are obtained in removal of the O compds. from these gasolines. W. R. Henn



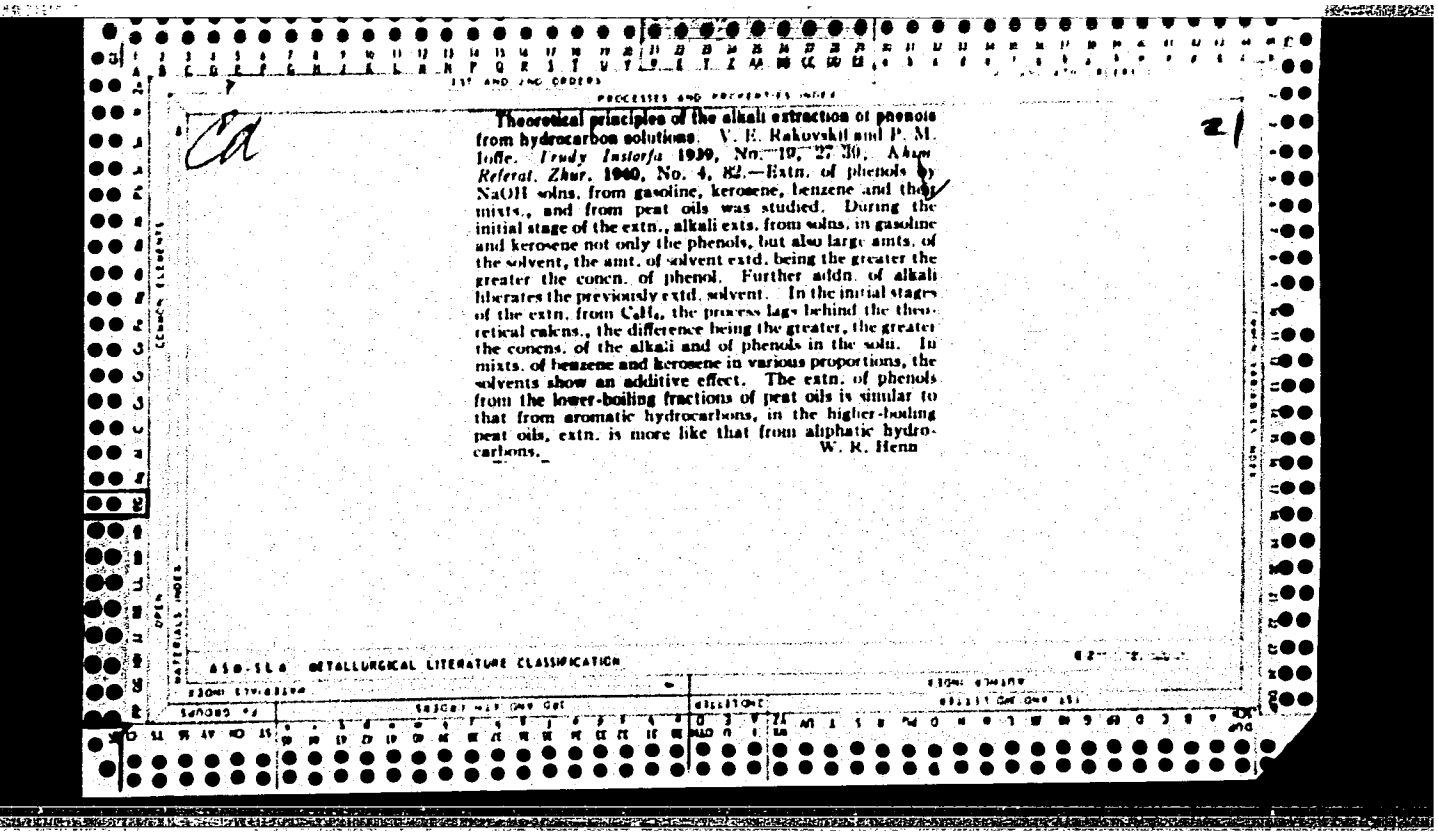
Pitch of primary peat tars. V. F. Rakovskii, Za Toplivnuyu Ind. 1938, No. 7, 25-31. Quality, properties and compn. of pitch depend on the tar from which it was prepd. A review. V. A. Polevoy

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



Gasoline from peat pitch coked in stills. A. Lipovskaya and V. Rakovskii. *Za Tekhnicheskuyu Ind.* 1939, No. 10-11, 38-40; cf. *C. A.* 33, 8058⁹.—Low losses are encountered in the coking of pitch in shell stills. The temp. is kept const. without difficulty and the servicing of such a still is much simpler than of the usual producer. The higher phenols are converted into lower-boiling phenols. The gasoline so obtained is satisfactorily refined by treatment with 3% of H_2SO_4 (d. 1.84). The gasoline has an octane no. of 60; the yield with a single recycling of the residues amounts as a rule to 125–130 kg. per ton of pitch.

A. A. Boehtlingk



Ca

Theoretical principles of the alkali extraction of phenols from hydrocarbon solutions. V. E. Rakovskii and P. M. Ioffe. *Trudy Instorfa* **1939**, No. 19, 27–30. *Abstr. Referat. Zhur.* **1940**, No. 4, 82.—Extn. of phenols by NaOH solns. from gasoline, kerosene, benzene and their mixts., and from peat oils was studied. During the initial stage of the extn., alkali exts. from solns. in gasoline and kerosene not only the phenols, but also large amts. of the solvent, the amt. of solvent extd. being the greater the greater the concn. of phenol. Further addn. of alkali liberates the previously extd. solvent. In the initial stages of the extn. from C_6H_6, the process lags behind the theoretical calcns., the difference being the greater, the greater the concns. of the alkali and of phenols in the soln. In mixts. of benzene and kerosene in various proportions, the solvents show an additive effect. The extn. of phenols from the lower-boiling fractions of peat oils is similar to that from aromatic hydrocarbons, in the higher-boiling peat oils, extn. is more like that from aliphatic hydrocarbons.

W. R. Henn

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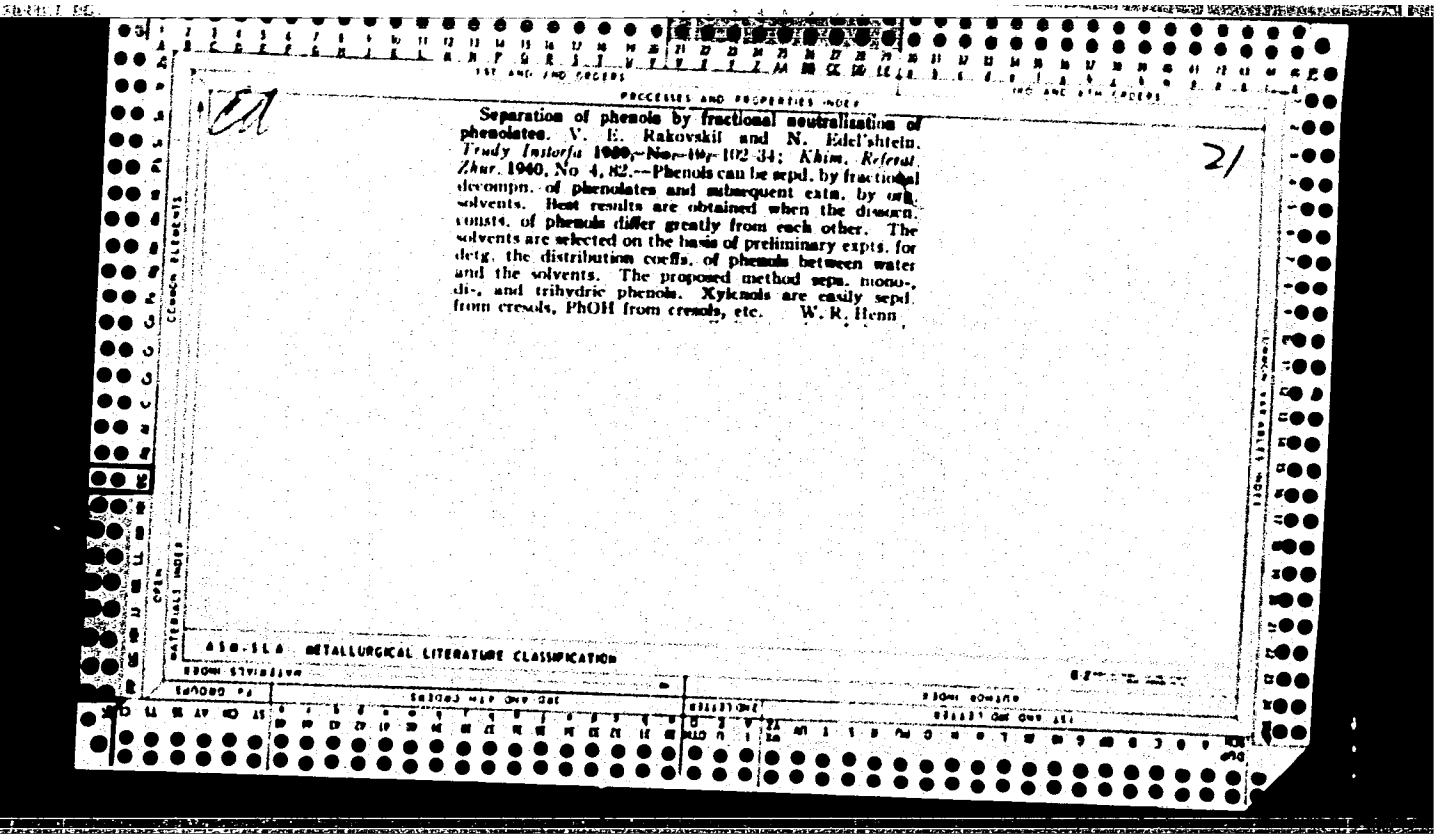

PROCESSES AND PROPERTIES INDEX

Separation of phenols by fractional neutralization of phenolates. V. E. Rakovskii and N. Edel'shtein. *Trudy Instorfa* 1939, No. 10, 102-34; *Khim. Referat. Zhur.* 1940, No 4, 82.—Phenols can be sepd. by fractional decompn. of phenolates and subsequent extn. by org. solvents. Best results are obtained when the dissocn. consts. of phenols differ greatly from each other. The solvents are selected on the basis of preliminary expts. for detg. the distribution coeffs. of phenols between water and the solvents. The proposed method sepa. mono-, di-, and trihydric phenols. Xylenols are easily sepd. from cresols, PhOH from cresols, etc. W. R. Henn

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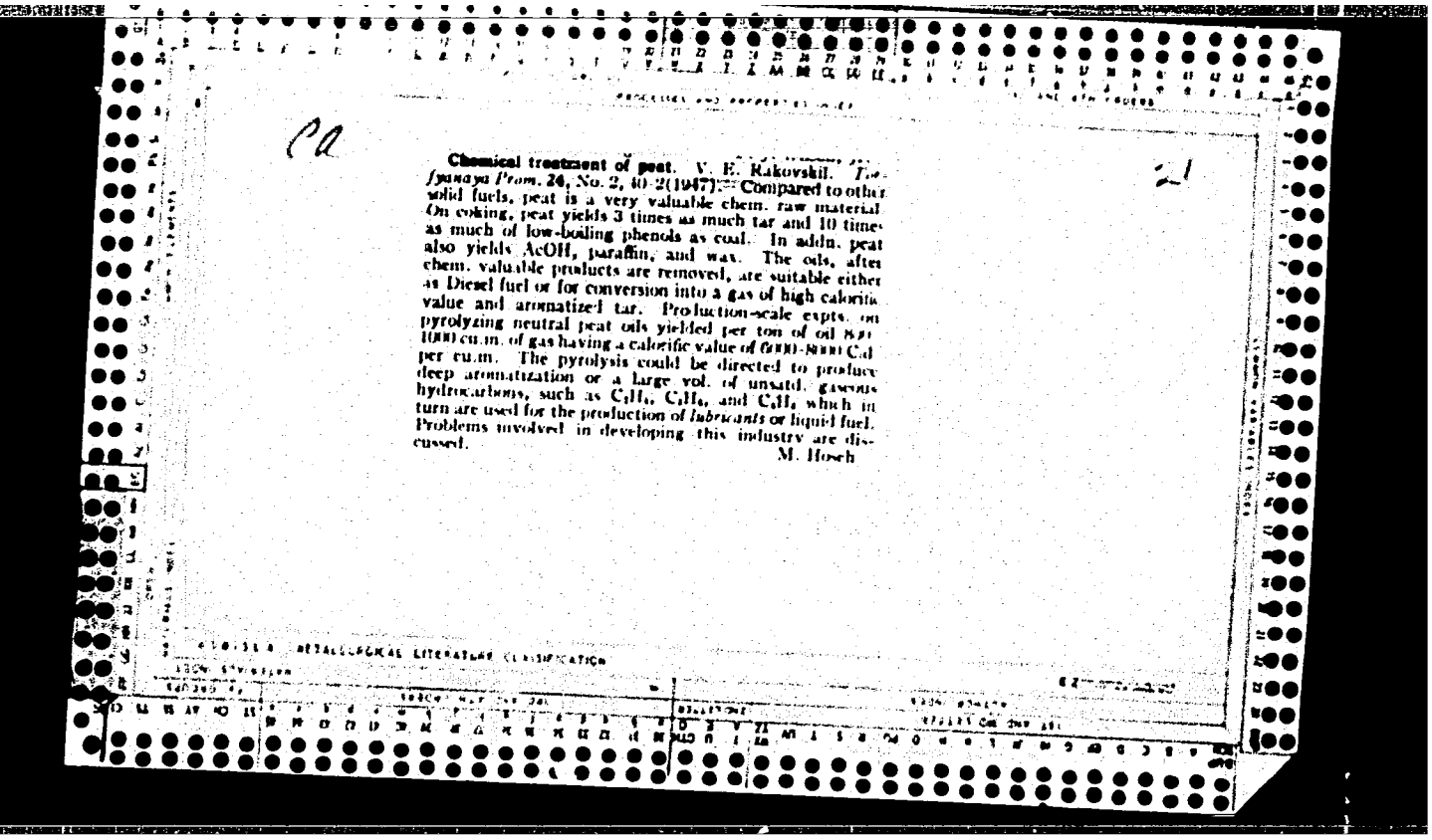
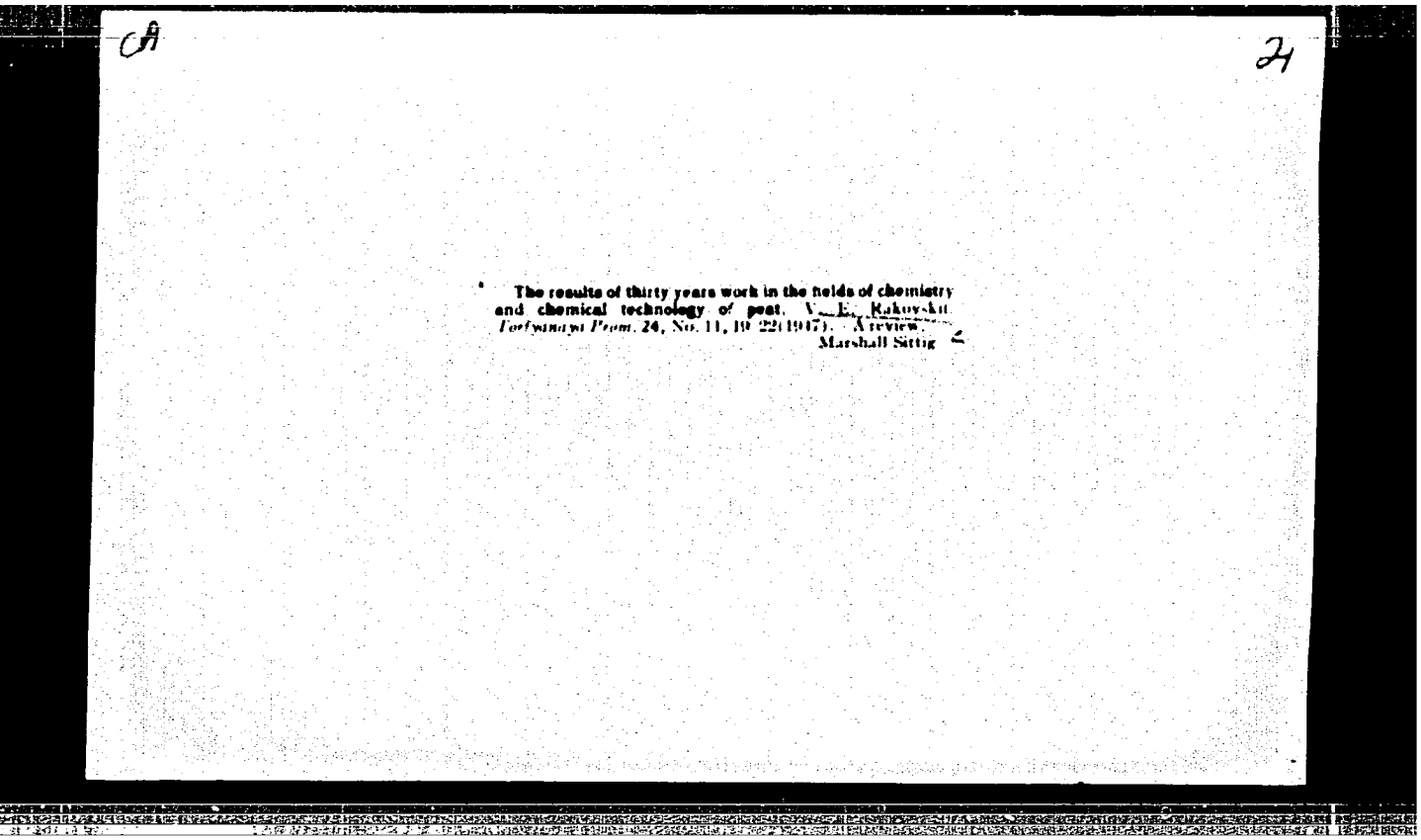
A50-51A METALLURGICAL LITERATURE CLASSIFICATION



Ca

Chemical treatment of peat. V. E. Rakovskii. *Torfyanaya Prom.* **24**, No. 2, 40–2(1947).—Compared to other solid fuels, peat is a very valuable chem. raw material. On coking, peat yields 3 times as much tar and 10 times as much of low-boiling phenols as coal. In addn, peat also yields AcOH, paraffin, and wax. The oils, after chem. valuable products are removed, are suitable either as Diesel fuel or for conversion into a gas of high calorific value and aromatized tar. Production-scale expts. on pyrolyzing neutral peat oils yielded per ton of oil 850–1000 cu.m. of gas having a calorific value of 6000–8000 Cal per cu.m. The pyrolysis could be directed to produce deep aromatization or a large vol. of unsatd. gaseous hydrocarbons, such as C_2H_4, C_3H_6, and C_4H_8 which in turn are used for the production of *lubricants* or liquid fuel. Problems involved in developing this industry are discussed.

M. Hosch



The results of thirty years work in the fields of chemistry and chemical technology of peat. V. L. Rakovskii. *Torfyanaya Prom.* 24, No. 11, 19-22 (1947). A review. Marshall Sittig

RAKOVSKIY, V. Ye.

Rakovskiy, V. Ye. - "Contemporary ideas in the field of peat genesis," In symposium: Torf v nar. khoz-ve Belorus. SSR, Minsk, 1948, p. 38-47

So: U-3566, 15 March 53, (Letopis 'Zhurnal 'nykh Statey, No. 13, 1949)

RAKOVSKIY, V.E.

Chemistry and technology of primary peat tars Minsk, 1949. 234 p. (50-19866)

TP953.R3

[illegible], V. Ye. "[illegible] leadership of Soviet science in the field of the chemistry of fuel processing", in the collection: [illegible], 1947, Minsk, 1949, p. 116-25.

SO: U-4393, 17 August 53, (Letopis 'Zhurnal'nykh Statey', No. [illegible], 1949).

C.A.

21

The nature of the mechanical strength of peat. V. E. Rakovskii and Kh. I. Rivkina. *Torfyanaya Prom.* 27, No. 1, 29–30 (1950).—It has been experimentally established that not only humic materials but also hydrolyzed carbohydrate products, having a sizing and cementing action, are present in peat. It has been established that the conversion of high-mol.-wt. acids in peat into bivalent (Ca) salts and trivalent (Fe and Al) salts contributes to the decreased sizing action of these materials. Lower peat has poorer mech. strength than upper peat owing to a predominance of salts in the lower layers and of free compds. in the upper layers.

Marshall Sittig

MAKOVSKIY, V. YE.

Tar

The chemical nature of asphalts and carboids of primary tars. Shor.nauch. trud.inst. torfa AN BSSR no. 1, 1951.

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

MAKOVSKI, V. Ye., KIVKINA, Ch. I.

Peat

Losses of organic matter of peat through drainage of peat deposits.
Sbor. nauch. trud. inst. torfa AN BSSR no. 1, 1951.

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RAKOVSKIY, V. YE., RAKOVSKAYA, N. A.

Peat Industry

Mechanical separation of peat. Sbor. nauch. trud. inst. torfa AN RSSR no. 1, 1952.

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

RAKOVSKIY, V. Ye.

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USSR

/Structure of thermal decomposition products of fuels (on the theory of fuel caking). V. E. Rakovskii. *Soobshcheniya Nauch. Rabot. Vsesoyuz. Khim. Obshchestva im. Mendeleeva* 1953, No. 2, 5–7; *Referat. Zhur., Khim.* 1954, No. 20116.—The caking ability of coal including coking is explained by a series of chem. processes taking place under suitable phys. conditions. Coals with a large content of aliphatic hydrocarbons give a powd. coke as result of a breakdown in their weak —C—C— bonds. Coals contg. cyclic hydrocarbons have much stronger —C—C— bonds in the aromatic ring and aromatic compds. are capable of nuclear condensation, e.g., $C_{14}H_{10}$ at 300° forms first binaphthyls and then coke. The condensation reaction proceeds easier in the liquid phase. For coke to be formed a min. quantity of liquid phase is necessary, since in the solid phase condensation takes place only in contact with a liquid and at a corresponding temp. Even coke of many fuels does not loose its capacity to become alkylated and take part in the condensation processes with aromatic compds.

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Change in wood in the process of becoming solid mineral fuel.
Trudy Inst.torf. AN BSSR no.2:59-67 '53. (MLRA 8:11)

1. Chlen-korrespondent Akademii nauk BSSR (for Rakovskiy)
(Wood) (Peat)

RAKOVSKIY, V.Ye.

V 3864. HUMIC ACIDS. Zhuravleva, M.M. and Rakovskii, V.E. (Trud. Inst. Torfa Akad. Nauk Belorussk. SSR (Trans. Inst. Peat White Russ. S.S.R.), 1953, vol. 2, 68-79; abstr. in Ref. Zh. Khim. (Ref. J. Chem., Moscow), 1955, (21), 4998). The composition was examined of humic acids extracted from various peats and the following peat-forming materials: birch leaves, moss, birch, pine and yew wood and lignite from brown coal. Determinations were made of the concentration of humic acids in the original material and the concentration in them of ash, acid radicals, and of carboxyl and hydroxyl radicals. There are considerable differences between humic acids from different vegetable species. Separation of the humic acid from one of the peats, after treatment in stages with alkali and precipitation with acid, showed that humic acids from peat consist of hydroxycarboxylic acids of different structures, mostly containing carboxyl radicals.

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