

SOV/135-58-12-2/20

Problems in the Development of Electric Arc Welding Equipment

by V.M. Shchitova, Ye.I. Slepushkin and V.T. Belik), which was tested and successfully used on modernized automatic machines for welding under flux and in carbon dioxide. The development of new types of rectifiers with stable characteristics and devices for arc voltage control is necessary. There are 2 graphs, 1 circuit diagram, 1 photo, 1 table and 5 Soviet references.

ASSOCIATION: Tsentral'naya nauchno-issledovatel'skaya laboratoriya elektricheskoy obrabotki materialov AN SSSR (Central Scientific Research Laboratory for the Electric Treatment of Materials, AS USSR)

Card 2/2

К А Б - 200105, I.V.

SOV/2150

PHASE I BOOK EXPLOITATION

26(1)

Soveshchaniye po kompleknyy mekhanizatsii i avtomatizatsii tekhnologicheskikh protsessov. 2nd, 1956.
 Avtomatizatsiya mashinostroitel'nykh protsessov; /trudy soveshchaniya, i goryachaya obrabotka metallov (Automation of Maching-Building Processes; Proceedings of the Conference on Over-All Mechanization and Automation of Technological Processes, Vol 1: Hot Metal-Forming) Moscow, 1959. 394 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: V.I. Dikuhin, Academician. Compiler: V.M. Baskatov. Ed. of Publishing House: V.A. Matov; Tech. Ed.: I.P. Kuz'min.

PURPOSE: The book is intended for mechanical engineers and metallurgists.

COVERAGE: The transactions of the Second Conference on the Over-All Mechanization and Automation of Industrial Processes, September 25-29, 1956, have been published in three volumes. This book, Vol. 1, contains articles under the general title, Hot Working of Metals. The investigations described in the book were conducted by the Sections on Automation and Hot Working of Metals, under the direction of the following scientists: casting - P.N. Aksenov, Dr. V.T. Meshcherin; welding - G.A. Nikolayev, A.P. Prokofev and G.A. Maslov. There are 183 references: 142 Soviet, 34 English, 6 German, and 1 French.

TABLE OF CONTENTS:

Balkovats, D.S. and P.I. Chuloshnikov. Automatic Process Control in Contact Welding	266
Gromov, M.A. Development of Automatic Welding Equipment	276
Nikolayev, G.A. Studies at the VVTU im. Bauman (Moscow Higher Technical School im. Bauman) on Automation of Welding Processes	280
Kasprzhak, G.M., I.Ye. Rabinovich, Ye. I. Shepushkin, and V.M. Shchitova. New Systems for Automating Welding Equipment	290
Verchenko, V.N. Automation of Arc Welding in a Projective Gas Medium	322
Frumkin, I.I. Automatic Weld Seam of Wear-Resistant Alloys	330
Babkin, D.M. Automatic Welding of Articles from Aluminum and Aluminum Alloys	348
Bochanovskiy, N.Ye. Work of the All-Union Scientific Research Institute of Electric Welding Equipment on Mechanization and Automation of Welding Processes	361
Krubavskiy, K.V., L.M. Yarovinitskiy, I.L. Brinberg, and I.M. Movozhilov. Mechanization and Automation of Welding Processes in Heavy Machine Building	371
Semenov, A.P. Seizing of Metals and Utilization of this Phenomenon	385
Aybinder, S.B. Cold Welding of Metals	
AVAILABLE: Library of Congress	

Card 8/8

TM/ejt
9/15/59
(1)

VLADIMIRSKIY, T.A., doktor tekhn.nauk; VROBLEVSKIY, R.V., inzh.;
 GLEBOV, L.V., inzh.; GODIN, V.M., kand.tekhn.nauk; GUZOV,
 S.G., inzh.; GULYAYEV, A.I., inzh.; YERSHOV, L.K., inzh.;
 KOCHANOVSKIY, N.Ya., kand.tekhn.nauk; LYUBAVSKIY, K.V., prof.,
 doktor tekhn.nauk; PATON, B.Ye., akademik, prof., doktor tekhn.
 nauk; RABINOVICH, I.Ya., kand.tekhn.nauk; RADASHKOVICH, I.M.,
 inzh.; RYKALIN, N.N., prof., doktor tekhn.nauk; SPETTOR, O.Sh.,
 inzh.; KHRENOV, K.K., akademik, prof., doktor tekhn.nauk;
 CHERNYAK, V.S., inzh.; CHULOSHNIKOV, P.L., inzh.; SHORSHOROV,
 M.Kh., kand.tekhn.nauk; BRATKOVA, O.N., prof., doktor tekhn.nauk,
 nauchnyy red.; BRINBERG, I.L., kand.tekhn.nauk, nauchnyy red.;
 GEL'MAN, A.S., prof., doktor tekhn.nauk, nauchnyy red.; KONDRATOVICH,
 V.M., inzh.; nauchnyy red.; KRASOVSKIY, A.I., kand.tekhn.nauk,
 nauchnyy red.; SKAKUN, G.F., kand.tekhn.nauk; nauchnyy red.;
 SOKOLOV, Ye.V., inzh., red.; IVANOVA, K.N., inzh., red.isd-va;
 SOKOLOVA, T.F., tekhn.red.

[Welding handbook] Spravochnik po svarke. Moskva, Gos.nauchno-
 tekhn.izd-vo mashinostroit.lit-ry. Vol.1. 1960. 556 p.

(MIRA 14:1)

1. AN USSR (for Paton, Khrenov). 2. ~~Chleny-korrespondenty AN SSSR~~
 (for Rykalin, Khrenov).
 (Welding--Handbooks, manuals, etc.)

S/775/62/002/000/011/011

AUTHORS: Kasprzhak, G. M., Rabinovich, I. Ya., Sidorkov, V. B.

TITLE: New rectifier circuits for arc welding.

SOURCE: Avtomatizatsiya protsessov mashinostroyeniya. t. 2: Goryachaya obrabotka metallov. Moscow, Izd-vo. AN SSSR, 1962, 246-265.

TEXT: The paper surveys various types of rectifier circuits for manual and automatic welding (WG) with reference to the anticipated general adoption of semiconductor-type rectifiers. Analysis of typical WG-rectifier circuits: The external V-I characteristics of rectifiers used for manual arc WG with coated electrode, automatic flux welding, and gas-shielded automatic and semiautomatic WG are briefly described, and the effects of the open-circuit V and the V-I slope on arc ignition and process control are discussed, including the transient problems occurring in self-regulating systems, especially with flat or rising characteristics. Fundamental principles of rectifier-circuitry selection and development: The TsNILELEKTROM of the State Committee of the Council of Ministers, USSR, for Automation and Machine Building has established the following fundamental principles for the development of new WG-rectifier circuits: (1) They must be applicable universally for the above-mentioned types of WG; (2) to minimize the power installed

Card 1/3

New Rectifier circuits for arc welding.

S/775/62/002/000/011/011

and the number of semiconductor (SC) valves, the external V-I characteristic must be gently descending, and an elevated open-circuit voltage (60-70 v) is to be provided by special arc-ignition devices; power fractioning is to be accomplished by booster-transformers, with a suitable stabilizing choke in the rectified-current line. One of the resulting WG rectifiers is shown in a full-page circuit diagram and is described in detail. Details of the booster-transformer circuitry, intended for symmetrical voltage regulation, are shown pictorially. The arrangement affords 20 steps of voltage regulation (2 figures), with a saving of 30-50% of active materials, an 8-12% increase in efficiency, and a power factor of 0.8-0.85, as compared with circuits in which saturation chokes in the a. c. circuit are used. Details of the arc-ignition transformer-rectifier complex are explained. Oscillograms are shown to illustrate the improvement in current control achieved. It is shown how the circuitry employed improves the response to sudden changes in arc length. Universal BCK- (VSK-) type WG rectifiers: The criteria developed in the foregoing chapter were translated at the TsNILELEKTROM into the VSK-type 150-a, 300-a, and 500-a universal rectifiers. A design analysis is provided, with especial emphasis on the features specified in the criterial chapter. The characteristics of the three rectifiers are tabulated. An experimental prototype of the VSK-150-III rectifier was built in 1958 and subjected to tests which showed (2 full-page graphs) that: (1) The external characteristic remains absolutely hard (flat), since the total equivalent resistance of the

Card 2/3

New Rectifier circuits for arc welding.

S/775/62/002/000/011/011

rectifier remains practically unvaried; (2) a slight increase in a/v slope occurs in the circuit with two parallel valve blocks, which is attributed to a nonlinearity of the internal resistance of the valves; (3) the efficiency with two valve blocks rises from 67 to 72% in the nominal regime (150 a, 23 v) and with practically unchanged power factor (0.82); (4) the test data confirm the design assumptions. Test data are summarized in a table. Oscillograms illustrate the process. The experimental prototype was followed by experimental batches of VSK-150 and VSK-300 issued by the TsNILELEKTROM; since 1961 VSK-300 rectifiers have been mass-produced by the Dnepropetrovsk plant of mining-automation equipment. Conclusions are stated on the particular features of the VSK-type rectifier which afford it excellent arc-ignition, applicability in a wide range of welding jobs, stability of operation, and conservation of active materials and power. There are 11 figures, 2 tables, and 5 Russian-language Soviet references.

ASSOCIATION: None given.

Card 3/3

RABINOVICH, I.Ya., doktor tekhn.nauk; VAVULO, I.V., inzh.

Electric and technological characteristics of a three-phase welding
arc in argon-arc welding of aluminum alloys. Svar. proizvod. no.10:7-
10 0 '63. (MIRA 16:11)

RABINOVICH, I.Ya.

Results in application of urosulfanilamide preparations in treatment of chronic suppurative otitis and wounds following radical operations. Vest.otorinolar. 13 no.1:77-78 Jan-Feb 51. (CLML 20:5)

1. Candidate Medical Sciences.

RABINOVICH, I. YA.

Pharynx - Tumors

Case of neurinoma of the retropharyngeal space. Vest. oto-rin., 14, No. 2, 1952.

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

RABINOVICH, I. Ya.

Nitrous oxide inhalation anesthesia in otolaryngology. Vest. otorinolar.,
Moskva 14 no. 3:42-46 May-June 1952. (CJML 22:4)

1. Docent. 2. Sverdlovsk.

ANDREYEV, Boris Ivanovich; LEDOVSKIKH, Stepan Ivanovich; RABINOVICH, Isaak Yevgen'yevich; SOKOLOV, M.N., retsenzent; SHIBANOVA, A.A., red.; PODOL'SKAYA, M.Ya., red.kart; KREYS, I.G., tekhn. red.

[Essays on economic geography: Austria, the German Federal Republic, and Switzerland] Ocherki ekonomicheskoi geografii: Avstriia, Federativnaia Respublika Germanii, Shveitsariia. Moskva, Uchpedgiz, 1963. 229 p. (MIRA 17:2)

RABINOVICH, K.G. (Moskva)

Forensic psychiatric evaluation of grave forms of alcoholic intoxication and their delimitation from so-called pathological intoxication.
Probl.sud.psih. 9:438-452 '61. (MIRA 15:2)
(Drunkenness (Criminal law))

RABINOVICH, K. R.; GREKHOV, G.F.

Geological structure presence and prospects of ore in the
southeastern part of the Irtysh shear zone. Trudy Alt.
GMNII AN Kazakh. SSR 9:64-71 '60. (MIRA 14:6)

1. Altayskiy gornometallurgicheskiy nauchno-issledovatel'skiy
institut AN Kazakhskoy SSR (for Rabinovich). 2. Vostochno-
Kazakhstanskoye geologicheskoye upravleniye (for Grekhov).
(Irtysh Valley--Geolgy, Structural)

RESUME

Geological and genetic characteristics of limestones in the
southern Alps. Title: ALPINE AN... 1963.

(MIRA 17:10)

КОЗЛОВ, В. С.; РАБИНОВИЧ, К. В.

Transverse dikes in the regional zones of crust in the Altai.
Veest. AN Kazakh. SSR. 19 no. 8: 36-42. 1963. (Sov. 17:7)

RABINOVICH, K. Ye. Cand Agr Sci -- (diss) "Mobile phosphates, methods of determining them, and factors of ~~their~~ conversion in soils." Mos, 1959. 19 pp (Acad Sci USSR. Soil Inst im V. V. Dokuchayev), 150 copies (KL, 52-59, 123)

RABINOVICH, Kh. A.

PHASE I Treasure Island Bibliographic Report

BOOK

Call No.: AF546524

- Authors: Ch. I. - LEVINTON, A. L. and PROVOZOV, F. F.
Ch. II - GOLOSTENOV, G. A., Beh. of Eng. Sci., and DERGISER, T. V. Eng.
Ch. III - PELL', V. G., Beh. of Eng. Sci., and RABINOVICH, Kh. A. Eng.
Ch. IV & V - DRUKKER, S. A., Beh. of Eng. Sci.
Ch. VI - PELL', V. G., Beh. of Eng. Sci.
Ch. VII - OSKOLKOV, I. M., Beh. of Eng. Sci., and SOKOLOV, S. A. Eng.
Ch. VIII - RADCHIK, R. I., Eng.
Ch. IX - GORDIYCHUK, I. B.
Ch. X - TOIMACHEV, V. A., Eng.

Full Title: TECHNIQUE OF CINEMATOGRAPHY

Series: Accomplishments of Soviet Cinema Technique

Transliterated Title: Kinos'emohnaya tekhnika

Seriya: Dostizheniya sovetskey kinotekhniki

Publishing Data

Originating Agency: None

Publishing House: State Publishing House of Cinematographic Literature (Goskinoizdat)

Date: 1952

No. pp.: 462

No. copies: 10,000

Editorial Staff

Editor: None

Tech. Ed.: None

Ed.-in-Chief: Goldovskiy, E. M.,

Appraiser: None

Dr. of Technical Sciences

1/2

Card 2/2

Call NO.: AF546974

RUSSIAN TITLE: **TECHNIQUE OF CINEMATOGRAFIY**
Series: Accomplishments of Soviet Cinema Technique

Text Data

Coverage: The book is the fourth in the series "Accomplishments of Soviet Cinema Technique" and describes the basic methods of taking colored motion pictures. The technique for black-white photography was given in the three previous books. A description of the combined and special types of production now adopted in Soviet cinema studios and the technique of cinema stage settings will be published in one of the following issues of the series.

The book primarily describes the lighting equipment, lenses and deflectors, electric power units for light effects, and arrangements for color-photographic balances of different intensities. The book also gives brief data on: apparatus for normal and synchronic methods of taking pictures; narrow and broad films; tripods of various types; controlling method and mechanisms in cinematographic apparatuses.

Purpose: General information for wide circle of specialists in motion pictures.

Facilities: Scientific Research Institute for Motion Pictures and Photography (N.I.K.F.I.); cinema-studios in Moscow and Leningrad regions.

No. Russian References: None

Available: A.I.D., Library of Congress.

PELL', V.G.; RABINOVICH, Kh.A.

Efficient utilization of electric power filming motion pictures.
Tekh.kino i telev. 4 no.4:22-27 Ap '60. (MIRA 13:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy kinofotoinstitut i kino-
studiya "Mosfil'm."
(Motion pictures--Lighting) (Electric power)

Rabinovich, Kh. I.

M
G
A reagent to develop the appearance of free cementite and the segregation of phosphorus in carbon steel and in cast iron. Kh. I. Rabinovich (Met. Combine, Magnitogorsk), *Zavodskaya Laboratoriya* 10(1956). — $\text{Na}_2\text{S}_2\text{O}_8$ is a dependable reagent for the observation of microstructure, such as that of the tertiary cementite in soft steel, free cementite in the pearlitic gray cast iron, and of the finely dispersed occlusions of carbides in low-tempered high-C steel. To 100 ml. of a satd. $\text{Na}_2\text{S}_2\text{O}_8$ soln., 1-2 g. $\text{Na}_2\text{S}_2\text{O}_8$, which acts as a catalyst, must be added, but too high acidity must be avoided to prevent the whole surface of the section from becoming coated with a deep-blue film. FeS formed by the ferrite is dark brown. The proper etching recommendations are given. The phosphides and alloy austenite are unaffected by the reagent.

W. M. Sternberg

of

RABINOVICH, Kh.I.

SOV/137-58-8-16554

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 46 (USSR)

AUTHORS: Zborovskiy, A.A., Strelkov, L.K., Skul'skiy, M.K.,
Rabinovich, Kh.I.

TITLE: Employment of Autoradiography Methods in Determination of
the Rate of Solidification of Ingots of Rimmed and Killed Steel
(Opredeleniye skorosti zatverdevaniya slitkov spokoynoy i
kipyashchey stali metodom avtoradiografii)

PERIODICAL: V sb.: Staleplavil'n. proiz-vo, Moscow, Metallurgizdat,
1958, pp 184-196

ABSTRACT: Radioactive Fe⁵⁹ was introduced into killed steel at different intervals of time following the casting of this steel into a 2400-mm high mold equipped with a lined cover and having the following dimensions: 760x680 mm (bottom) and 720x510 mm (top). Experimental ingots were rolled into square billets (120 mm per side), specimens were taken along the length of the rolled billet, and 5-mm thick transverse templets were cut from it for purposes of radiographic studies. Assuming that the ratio of the surface of activated zone to the surface of a transverse section of the ingot remains unchanged during

Card 1/2

SOV/137-58-8-16554

Employment of Autoradiography Methods (cont.)

rolling, radiograms were employed in the computation of the thickness of a layer which had solidified by the time the isotope was introduced. The data obtained coincide almost completely with the curve $D=2.6 \sqrt{t}$, where D is thickness of the solidified layer of metal (expressed in mm); t is the time (in minutes) which has elapsed after the mold had been filled; 2.6 (cm/min) is the solidification constant of the steel in a cast-iron mold (obtained by the method of overturning of analogous ingots). When the molds with the ingots were not disturbed until the metal had solidified completely and the isotope was introduced into the ingot in three successive portions, four boundaries of isotope distribution, i.e., four zones of activity (the maximum activity being in the central zone) were observed in all but one experiment. It is assumed that the appearance of an "extra" zone is the result of intensified agitation of metal during the displacement (shaking) of the molds, a fact which may, therefore, have an adverse effect on distribution of liquates in an ingot. The crystallization of rimmed steel was investigated in an analogous manner by introducing radioactive isotopes of Fe or S into ingots weighing 6.9 tons. In computing the thickness of the solidified layer, the volumetric reduction of metal which occurs during rolling, apparently, was not taken into consideration with sufficient accuracy because the results obtained diverge somewhat from the values obtained by means of the "Chipmen" formula, $D=3.05 + 22.56 \sqrt{t}$. 1. Steel--Properties 2. Steel--Autoradiography
Card 2/2 3. Iron isotopes (Radioactive)--Applications L.K.

Translation from: Referativnyy zhurnal. Metallurgiya, 1958, Nr 12, p 41 (USSR) SOV/137-58-12-24207

AUTHORS: Skved, F. N. Rabinovich, Kh. L.

TITLE: Oxygen Applications in Steel Melting at the Myshega Plant for Reinforcing Steel (O primenenii kisloroda pri vyplavke stali na Myshegskom armaturnom zavode)

PERIODICAL: Byul. tekhn.-ekon. inform. Sov. nar. kh-va Tul'sk. ekon. adm. r-na, 1958, Nr 1-2, pp 45-46

ABSTRACT: O₂ blow of St at the Myshega Plant was adopted in 1952 and is now employed in the melting of acid-resistant steel (St) from scrap. The charge consists of 80-90% scrap. O₂ is employed during the melt-down and oxidizing periods in the melting of carbon St. To protect the metal against excessive oxidation, the percentage of conversion pig iron in the mix is increased to 25%. O₂ consumption during the melting period is 12-15 m³/t St. The electric energy saving is 150-180 kwh/t, the melting time is diminished by 15%. The O₂ is introduced into the furnace by Fe lances. The tubes are coated with a bulk mixture of fireclay powder and water glass.

Card 1/1

V. B.

RABINOVICH, L.

Elektroavtomatika aviatsionnykh elektromekhanicheskikh ustanovok
[Automatic electric equipment in aviation electromechanical units] Moskva,
Oborongiz, 1957.

421 p. diagrs., graphs.

At head of title: Russia. Ministerstvo Vyshego Obrazovaniya, and
Moscow. Aviatsionnyy Institut.

"Literatura": p. 416

RABINOVICH, L., inzh.

Docks of the Dnieper Ore-Dressing Combine. Rech. transp. 20
no. 1:47-48 Ja '61. (MIRA 14:2)
(Dnieper River--Docks) (Iron ores--Transportation)

RABINOVICH, L.

Season of transporting the grain is approaching. Avt.transp.
40 no.5:16-17 My '62. (MIRA 15:5)
(Grain--Transportation)

RABINDVICH, L.A., dotsent

Case of necrosis of the extremities following carbon monoxide poisoning. Ortop.travm. i protez. no.3:68-69 My-Je '55 (MLRA 8:10)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (sav.prof. I.S.Bakkal) Kazakhskogo meditsinskogo instituta im. V.M. Molotova.

(CARBON MONOXIDE, poisoning,
causing leg gangrene)

(POISONING,
carbon monoxide, causing leg gangrene)

(LEG, gangrene,
caused by carbon monoxide pois.)

(GANGRENE,
leg, caused by carbon monoxide pois.)

RABINOVICH, L. A., CAND TECH SCI, ^{study} "INVESTIGATION OF
DEFORMATIONS AND STRESSES IN ^{the} FORMING ^{of} HOLLOW FORGINGS OF
COMPLEX SHAPES ON HORIZONTAL FORGING MACHINES." MOSCOW,
1960. (MIN OF HIGHER AND SEC SPEC ED RSFSR, MOSCOW ^{Machine Tool and}
INSTRUMENT INST IM I. V. STALIN). (KL, 3-61, 219).

20204

S/182/60/000/011/006/016
A161/A029

11400

also file 1454

AUTHOR: Rabinovich, L.A.

TITLE: Investigation Into Metal Flow in Stamping of Complex Shape
Hollow Forgings in Horizontal Presses

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No.11, pp.21-25 ²⁻

TEXT: Horizontal forging machines or "GKM" (for gorizonta'l'no-kovochnaya machina) make possible the forging of hollow work with nearly accurate shape of ready parts. The article contains information on experiments with several types of complex hollow forgings: with a protrusion on the front end; with two protrusions in sequence on the outside; with two flanges, and with a flat eye on the bottom portion. The flow of metal was studied on composite blanks (a screw with tightly fitted cylindrical nuts screwed on). The first three of the listed types were forged with four passes after single heating. The displacement of metal was watched by the coordinates of marked points in cross sections (Fig. 1). After failures with the second type (two protrusions, incomplete filling of the die, Fig. 4), the following operations sequence proved to be correct: forming the
Card 1/8

20204

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

collar and first protrusion in the first pass ; preliminary piercing (for a depth ensuring a collar length equal to 0.8 D) with simultaneous final formation of the first protrusion in the second pass; piercing to final depth with simultaneous final formation of the second protrusion in the third pass; in the fourth pass the forging was separated from the rod. The second-type forging is shown in Fig. 5. No upsetting and no flow of metal toward the piercer was observed in this procedure. Deformation in the sequence shown in the photos (Fig. 6 and 7) proved right for the third type of forgings with two flanges, from steel, commercially pure titanium, and for AR (AV) aluminum alloy. The last type with end eye (Fig. 8) from BT5 (VT5) titanium alloy was forged in two dies with reheat. The eye was formed in the first die with three impressions and the cylindrical part in the second die. During the forging in the second die the blank was held in place with special tongs by the ready eye portion. In the first impression of this die the metal was collected in the piercer with a conical hollow; the collar was formed in the second impression (to prevent up-

Card 2/8

20204

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

setting during piercing); piercing was done in the third and fourth pass with constant blank length and metal flow mainly in radial direction. The following conclusions are drawn: 1) the investigation method with composite blanks permits observations of metal flow to be made in the real production process; 2) the nomenclature of forgings produced in horizontal presses can be extended after determination of the nature and magnitude of metal displacement in typical forging patterns; 3) the shaping of hollow complex forgings requires preliminary redistribution of metal on the blank in order to obtain the hollow with minimum axial flow of the metal; 4) the horizontal presses are suitable for complex hollow forgings from steel, titanium alloys (VT1 and VT5) and the aluminum alloys AB (AV) and AK5 (AK6). There are 8 figures.

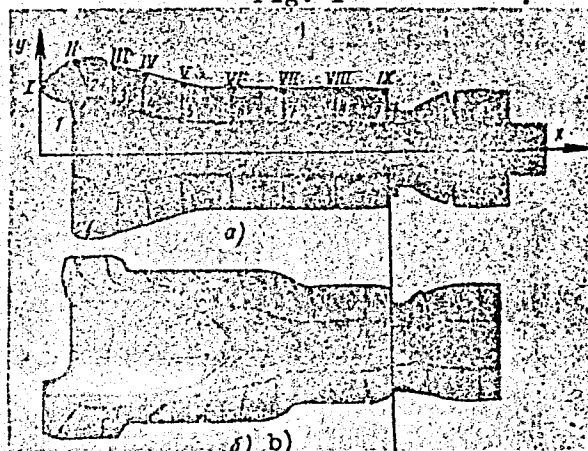
Card 3/8

20201

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

Fig. 1



Card 4/8

20204

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

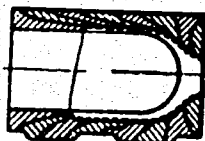
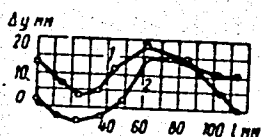
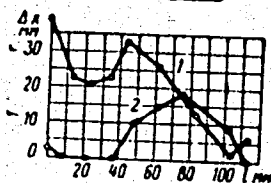


Fig. 5



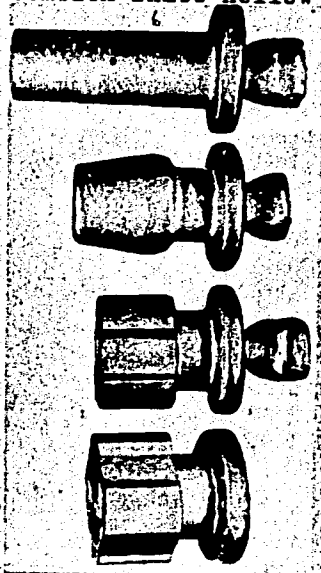
Card 5/8

2020h

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

Fig. 6



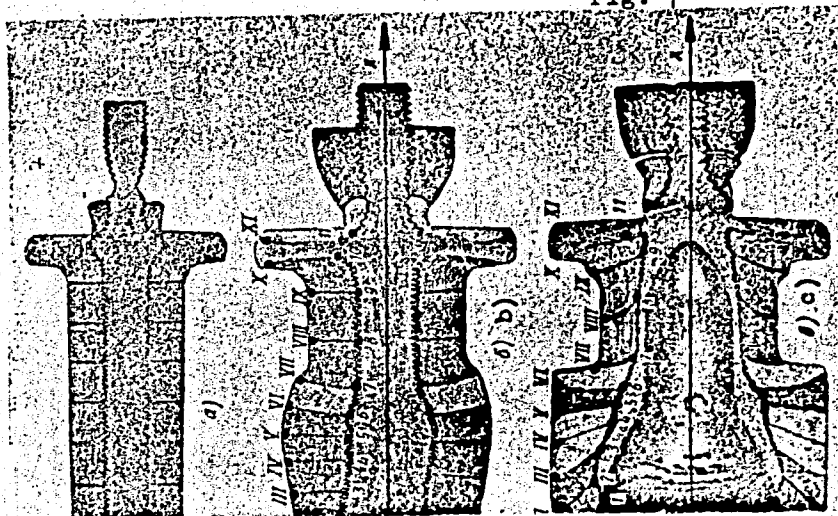
Card 6/8

20204

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

Fig. 7



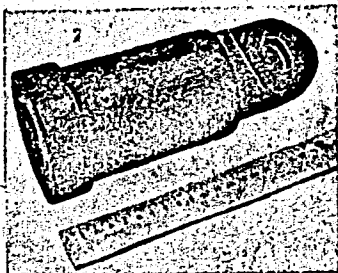
Card 7/8

20204

S/182/60/000/011/006/016
A161/A029

Investigation Into Metal Flow in Stamping of Complex Shape Hollow Forgings
in Horizontal Presses

Fig. 8



Card 8/8

S/122/60/000/010/009/015
A161/A030

AUTHOR: Rabinovich, L.A., Engineer

TITLE: Study of Piercing Process in Horizontal Forging Machines

PERIODICAL: Vestnik mashinostroyeniya, 1960, No. 10, pp. 47-52

TEXT: The existing manuals for forging on the ГKM (GKM) machines concern mainly solid forgings, and for hollow forgings the technique has to be calculated using one's own experience, the results not always being good. This article gives the results of an investigation of the formation of hollow forgings and the effect of the piercing tool shape. Cylindrical billets (rectangular are considered impractical) with a screw and tightly set round nuts were pierced in a "GKM-4" machine. Deformations were measured with a carbon dynamometer placed in the piercer holder. The effect of a "collar" on the billet end was studied on two "collar" types. The first version ensured at certain billet parameters the formation of a hollow with minimum metal flow and no change of the billet length. The observations are discussed in detail. Diagrams were plotted showing the variations of effort with

✓

Card 1/2

S/122/60/000/010/009/015
A161/A030

✓

Study of Piercing Process in Horizontal Forging Machines

a different shape of piercing tool end. The billet with "a" collar required 15% less deformation work than that with "b" collar. A conical piercer tip with 90-110° taper proved most effective. The following is recommended: to employ deep-piercing on billets with a cross section area equal to the cross section area of the forging; to use a "collar" on the front end of the billet, of $D \geq 1.1D_M$ diameter and $l \geq 0.3D_M$ length (where D_M is the outer diameter of the forging); to prevent longitudinal bending of the billet and increase the piercing depth up to four diameters of the initial billet in a single stroke of the machine slider by changing the initial billet cross section shape to a rhomb (from initial circular), which is possible in dies with simultaneous formation of the "collar". There are 6 figures and 4 Soviet references.

Card 2/2

24552
S/182/61/000/008/003/005
D038/D113

1.1400

AUTHOR: Rabinovich, L.A.

TITLE: The preparation of forgings by pressing on horizontal forging machines

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, ³⁻no. 8, 1961, 8-13

TEXT: The article deals with an experiment where forgings are manufactured in a die consisting of two-perpendicularly placed sections. It is stated that since the forgings can be removed from the dies by tongs after pressing, the production of the dies should be less labor consuming. The AK6 (AK6) and AB (AV) aluminum alloys were used for the production of brackets, smooth and embossed surface shells and valves. The dies were heated to 150-200° C prior to pressing, and animal fat was used as a lubricant. The work inserts for pressing were made from 3X2B8 (3Kh2V8) steel which was heat treated to HB 444-514, the guides were made from 40X (40Kh) steel (HB 341-388) and the punch from 7X3 (7Kh3) steel (HB 415-477). The dimensions of

Card 1/2

24552

S/182/61/000/008/003/005
D038/D113

The preparation of forgings

the working part of the punch must allow a t gap = 0.2 ÷ 0.3 mm between the punch and the container. A speed and capacity range for deformation, and an example of a method of pressing a bracket are included. It is stated that brackets can be pressed at a 1250-ton press capacity at approximately 180 cm/sec. The produced forgings hardly required any finishing operations, and only 6-8% of the metal was wasted. The range of forgings could be considerably expanded by using aluminum and steel alloys. Horizontal press forging machines could be widely adopted for the production of forgings if maximum permissible speeds of pressing were adopted in the new process. The following took part in the work: Ye.I. Sokolov, V.M. Sapozhnikov and M.A. Khlyntsev. There are 6 figures, 1 table and 5 Soviet references.

Card 2/2

L 13101-63

EWP(q)/BDS/EWT(m) AFFTC/ASD JD

ACCESSION NR: AP3000079

S/0182/63/000/005/0001/0005

AUTHOR: Rabinovich, L. A.

52 A

TITLE: Determining the thermal and mechanical conditions of plastic deformation and of the formability of a metal

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 5, 1963, 1-5

TOPIC TAGS: forging, stamping, deformation, work, pressure, mechanical properties, plasticity, temperature

ABSTRACT: The author criticizes the practice of supplying new alloys to forging and stamping establishments with no data or only insufficient data for forming these alloys. He suggests that such information should contain instructions pertaining to: 1) the allowable amount of deformation; 2) work and pressure required; 3) mechanical properties of the product; 4) metal plasticity; and 5) temperature range for metal forming. The allowable amount of deformation should be calculated from the formula: $\Delta h = \frac{H - H_{sub 1}}{H} / 100$, where H is the original height of a sample, H sub 1 is the height of a sample after deformation. For a cylindrical sample the formula is $\Delta h_{sup 1} = \frac{D - B/D}{100}$, where D is the original diameter and B is the height after deformation. Tests should be made at different

Card 1/2

I 13401-63

ACCESSION NR: AP3000079

temperatures and should be continued until the first crack appears. The equipment should consist of a 100-kg drop hammer, a 200-ton press, and 1300C furnace. The tested samples should be 20 mm in diameter and 30 mm high. The tests should be started at 50C above the temperature of recrystallization for a given metal and should be continued up to temperatures of 100-150C below the melting point. Average work and pressure may be determined from the results of the preceding experiments by dividing total work or pressure causing deformation by the contact area. Data on mechanical properties of the products should give their strength, relative elongation, relative area diminution, and resistance to impact. Plasticity of metal should be determined by placing a sample in a block with a depression into which a die with a conical recess may be forced. The amount of plasticity is then determined by the height to which the tested metal enters the conical recess. The plasticity is designated by the letter PHI with two indexes. The upper index indicates the temperature at which the deformation occurred, the lower indicates the amount of work expended in producing this deformation. The temperature range for forging and stamping a given alloy is determined in the course of the preceding experiments. Orig. art. has: 4 graphs, 4 equations, 3 tables, and 2 figures.

ASSOCIATION: none

SUBMITTED: 00

SUB CODE: QQ

Card 2/2

DATE ACQ: 17Jun63
NO REF SOV: 000ENCL: 00
OTHER: 000

RABINOVICH, L. B.

Report presented at the 1st All-Union Congress of Theoretical and Applied Mechanics, Moscow, 27 Jan - 1 Feb '60.

- 102. A. A. Derjagin (Moscow): The state of stress and deformation of the turbine blades.
- 103. L. A. Dery (Moscow): On some new forms of the general solution of the three-dimensional problem of the theory of elasticity expressed in invariant functions.
- 104. A. A. Derjagin (Moscow): Generalization of the method of stepwise displacement in structural mechanics.
- 105. A. V. Derjagin (Moscow), S. V. Serpin (Leningrad): Surface phenomena in the mechanics of clays.
- 106. A. A. Dery (Moscow): Experimental data concerning the propagation of vibrations of different frequencies in concrete structures.
- 107. S. L. Dushmanin (Leningrad): Almost's problem.
- 108. A. I. Dushmanin (Leningrad): A finite difference analysis of cylindrical shells with rectangular ribs.
- 109. A. I. Dushmanin (Leningrad): Generalization of Mohr's method of calculating the displacements in problems of the theory of elasticity.
- 110. A. A. Dery (Moscow): The construction of solutions of uniformly convergent series.
- 111. S. G. Prakhin (Leningrad): A method of investigating the states of stress and strain and the slip lines in anisotropic multilayer metals.
- 112. A. A. Dushmanin (Leningrad): The stability of an elliptical beam.
- 113. S. L. Dushmanin (Leningrad): A problem of the stability of a shell with a rectangular rib.
- 114. A. A. Dushmanin (Leningrad): On the shear strength of shear-resistant foundations.
- 115. A. A. Dushmanin (Leningrad): On friction in sandy soils and their shear strength.
- 116. S. L. Dushmanin (Leningrad): The deformation of the ground under an oblique foundation.
- 117. S. G. Prakhin (Moscow): On stresses and strains of thin-walled rods of variable cross section of normal and shear deformations.
- 118. S. L. Dushmanin (Leningrad): Determination of the stresses in a group of shells under loading taking account of the arbitrary deformation of the shells.
- 119. S. L. Dushmanin (Leningrad): The internal stresses of a thin-walled rod of variable cross section of normal and shear deformations in a shell.
- 120. A. A. Dushmanin (Leningrad): The elastic-plastic bending of a bar.
- 121. A. A. Dushmanin (Leningrad): Elastic properties of a plastically deformed metal under combined loading.
- 122. A. A. Dushmanin (Leningrad), S. V. Serpin (Leningrad): Investigation of the effect of anisotropy of the material on the results in the state of a thin rod.
- 123. A. A. Dushmanin (Leningrad): On the propagation of plastic waves in a thin-walled rod.
- 124. L. I. Dushmanin (Leningrad): On the action of waves on a shell.
- 125. S. L. Dushmanin (Leningrad): An experimental study of the propagation characteristics of waves under combined stresses.
- 126. S. L. Dushmanin (Leningrad): The propagation of an elastic wave in a thin-walled rod.
- 127. S. L. Dushmanin (Leningrad): On the state of stress in compression and its effect on the construction of thin-walled shells.
- 128. S. L. Dushmanin (Leningrad): The law of deformation and rupture of thin-walled rods.
- 129. S. L. Dushmanin (Leningrad): The propagation of elastic waves in a thin-walled rod.
- 130. S. L. Dushmanin (Leningrad): The propagation of elastic waves in a thin-walled rod and the effect of anisotropy of the material on the results.
- 131. S. L. Dushmanin (Leningrad): On the anisotropy of elastic and plastic waves.
- 132. S. L. Dushmanin (Leningrad): Plastic bending and torsion of thin-walled rods under combined stresses.
- 133. S. L. Dushmanin (Leningrad): Investigation of the propagation of vibrations in a thin-walled rod under combined stresses.

DYATLOVITSKIY, L.I. (Kiyev); RABINOVICH, L.B. (Kiyev)

Elasticity problem for bodies with configuration changing under
loading. Inzh.zhur. 2 no.2:287-297 '62. (MIRA 15:6)
(Elastic solids)

RABINOVICH, L.G. (DECEASED)

MARUSEVA, A.M.; RABINOVICH, L.G. [deceased]

Effect of certain chemicals on electric manifestations of the activity of the cochlea and the acoustic nerve. Probl.fiziol. akust. 2:72-81 '50 (MIRA 10:11)

1. Laboratoriya fiziologii organov chuvstv Fiziologicheskogo instituta im. akd. I.P.Pavlova AN SSSR.

(ELECTROPHYSIOLOGY) (PHARMACOLOGY) (ACOUSTIC NERVE)
(LABYRINTH (EAR))

FISHER, G.M.; RABINOVICH, L.I.

Dry lactic nutritional media. Lab. delo no.3:183-184 '65.
(MIRA 18:3)

1. Kuybyshevskiy institut epidemiologii, mikrobiologii i
gigiyeny.

RABINOVICH, L.M.

On so-called migrating granuloma of the face. Stomatologia,
Moskva no.3:33-37 1951. (CML 21:1)

1. Candidate Medical Sciences. 2. Of the Department of
Surgical Stomatology (Head -- Prof. A. A. Limberg, Corres-
ponding Member of the Academy of Medical Sciences USSR),
Leningrad Medical Stomatological Institute.

RABINOVICH, L.M.
EXCERPTA MEDICA Sec.13 Vol.11/3 Dermatology, etc. Mar 57

742. RABINOVITCH L. M. Chair of Pathol. Anat., Inst. for Perfection of Doctors, Leningrad. *Odontogenic subcutaneous granuloma of the face (Russian text) VESTN. VENER. DERM. 1955,1 (14-17) illus. 5
100 patients with lesions in the soft tissues of the face are presented; in the course of these limited foci a proliferative inflammation of the type of a granuloma formed in the subcutis. The pathogenesis of these granulomas is closely linked with teeth affections. The author proposes to call them odontogenic s. c. granulomas of the face; he differentiates them further in stationary and creeping (serpiginous) forms of the disease. X-ray examination reveals various lesions around the apices: shadows of a granuloma, cysts and limited osteo-myelitic foci. Histologically, 4 types of granulomas can be differentiated: (1) exudative-proliferative, (2) proliferative, (3) scarring, (4) mixed. For the treatment and prevention of odontogenic granulomas it is necessary to follow-up the tooth extraction with an obligatory scraping of the socket.
Kozhernikov - Leningrad

RABINOVICH, L.M., kand.med.nauk

Case of heteroplastic bone formation in the region of the mucous
membrane of the upper lip. Stomatologia 40 no.1:96-97 Ja-F '61.
(MIRA 14:5)

1. Iz Vsileostrovskoy rayonnoy stomatologicheskoy polikliniki
Leningrada (glavnyy vrach P.P.Lazareva).
(LIPS—TUMORS)

RABENOVICH, L.M., kand. med. nauk

Clinical aspects, pathological anatomy and treatment of retention cysts of small salivary glands. Stomatologiya 42 no.4: 45-46 Ji-Ag'63 (MIRA 1784)

1. Iz rayonnoy stomatologicheskoy polikliniki No.2 (glavnyy vrach P.P.Lazarova) Vasileostrovkogo rayona Leningrada.

RABINOVICH, L.S., referent [deceased]

Science and technology in foreign countries (from the "Journal
of the American Leather Chemists Association," no.3, 1961). Kozh.-
obuv.prom. 4 no.1:38 Ja '62. (MIRA 15:3)
(United States--Leather)

21

Utilization of ammonium carbonate solutions in the production of ammonium nitrate. A. M. Muzin and I. S. Rubinovich. *Khimstro* 6, 233-7 (1934). — *Calcutt*. See given showing that considerable economies can be effected in the recovery of NH_3 from coke-oven gas by conversion of $(\text{NH}_4)_2\text{CO}_3$ in the scrubbing liquor to NH_4NO_3 for the recovery of NH_3 by disson. and concn. by distn. Chas. Blane.

ASAC 35.6 METALLURGICAL LITERATURE CLASSIFICATION

RABINOVICH, L.S., referent

Effect of temperature on the breaking of hydrogen bonds in collagen by urea (From "Journal of the American Leather Chemists Association," no.10 1960). Kozh.-obuv.prom. 3 no.6:31 Je '61. (MIRA 14:8)
(Collagen) (Urea)

L 09066-67 EWP(e)/EWT(m)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/WW/JG/DJ/WH
ACC NR: AP6030609 (A, V) SOURCE CODE: UR/0413/66/000/016/0095/0095

INVENTOR: Rabinovich, L. S.; Sharapov, A. M.; Rubashkin, L. I.; Radomysel'skiy,
I. D.; Klimenko, V. N.; Konchakovskaya, L. D.; Stepanenko, G. M.; Kanovalov, V. M.

ORG: none 27

TITLE: Cermet materials, Class 40, No. 185069 [announced by the Institute of
Material Study, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)]

SOURCE: Izobreteniya, promyshlennyye obratzay, tovarnyye znaki, no. 16, 1966, 95.

TOPIC TAGS: ~~iron containing material, cast iron, containing material, steel, containing material~~
metal, ceramic material, cermet

ABSTRACT: This Author Certificate introduces a sintered material containing (for better wear resistance) 60-70% iron powder, 20-30% cast iron powder, and 10-12% steel powder, such as Kh-30 steel powder. This material is used for extending the service life of stators and disks of rotary double-action pumps. [ND]

SUB CODE: 11/ SUBM DATE: 27Jul64/ ATD PRESS: 5077

Cord 1/1 nst

UDC: 669.018.25; :621.762.2

Rabinovich, Ls.

USSR/General Section - Problems of Teaching.

A-5

Abs Jour : Referat Zhur - Fizika, No 1, 1958, 66

Author : Rabinovich, Ls., Frolov, I.

Inst : -

Title : Production Practice of Physics Students in the Pedagogical
Institute.

Orig Pub : Palitekhn. abucheniye, 1957, No 8, 64-72

Abstract : No abstract.

Card 1/1

RABINOVICH, I.S., kapitan-leytenant

Methods of determining gyrocompass errors. Mor. sbor. 47 no.6:46-50
Je '64. (MIRA 18:7)

RABINOVICH, L. V.

See: YERMOLENKO, N. F., and LEMETS, N. L.

Yermolenko, N. F., Rabinovich, L. V., and Lemets, N. L. - "The thermal dependence of the surface activity of solutions of surface-active materials and their mixtures", (Report), Soobshch. o nauch. rabotakh chlenov Vsesoyuz. Khim. o-va im. Mendeleeva, 1949, Issue 1, p. 14-15.

SO: U-4630, 16 Sept. 53, (Letopis 'Zhurnal 'nykh Statey, No. 23, 1949).

RABINOVICH, L.V.

Y Kinetics of the swelling of vulcanized rubber in mixed media. N. P. Ermolenko and L. V. Rabinovich. *Uchenye Zapiski Beloruss. Univ., Ser. Khim.* 1953, No. 14, 38-40; *Referat. Zhur., Khim.* 1954, No. 42813. — The effect of polar substances (EtOH, *p*-nitrophenol, and *o*-nitrophenol) added to benzene on the swelling of vulcanized natural rubber was studied. The swelling was detd. by the Ermolenko and Mazel method (*C.A.* 47, 14071). Addn. of 0.5% of EtOH increased swelling; this is attributed to solvation of the double bonds in the rubber mol. with mols. of EtOH. Addn. of *p*- and *o*-nitrophenol lowered swelling, and this is explained by a more intense interaction of the nitrophenols with benzene than with rubber. The same was observed on addn. of large quantities of EtOH. The exptl. data on the kinetics of swelling are in good agreement with the Noyes-Whitney and Mazel-Ermolenko equations (cf. *C.A.* 49, 10054h).
M. Hoseli

MT

2m

MA

(1)

MT V688. Kinetics of the swelling of vulcanised rubber
in mixed media. N. P. ERMOLENKO and L. V.
RABINOVICH. *Uchenye Zapiski Beloruss. Univ., Ser.
Khim.* 1953, No. 14, 38-46; *Referat. Zhur., Khim.*,
1954, No. 42813; *Chem. Abs.*, 1956, 49, 14369. The
effect of polar substances (ethyl alcohol, *p*-nitro-
phenol, and *o*-nitrophenol) added to benzene on the
swelling of vulcanised natural rubber was studied.
The swelling was determined by the L. N. Ermolenko
and M. I. Mazel method (this journal, 1953, abs.
4031). Addition of 0.5% of ethyl alcohol increased
swelling; this is attributed to solvation of the
double bonds in the rubber molecule with mole-
cules of ethyl alcohol. Addition of *p*- and *o*-nitro-
phenol lowered swelling, and this is explained by a
more intense interaction of the nitrophenols with
benzene than with rubber. The same was observed
on addition of large quantities of ethyl alcohol. The
experimental data on the kinetics of swelling are in
good agreement with the Noyes-Whitney and
Mazel-Ermolenko equations. 63161

2 may

MA
02/28

①

mod

R. RABINOVICH, L. V.

23

PHASE I BOOK EXPLOITATION

Rabinovich, L. V.

Elektroavtomatika aviatsionnykh elektromekhanicheskikh ustanovok
(Electric Automation of Aircraft Electromechanical Installations) Moscow, Oborongiz, 1957. 421 p. 8,300 copies printed.

Sponsoring Agency; Moscow. Aviatsionnyy institut im. Sergo Ordzhonikidze

Ed.: Grigorash, K.I.; Managing Ed.: Latynin, Ye. V.; Ed. of Publishing House: Suvorova, I.A.; Tech. Ed.: Rozhin, V.P.

PURPOSE: This monograph is addressed to students enrolled in courses in automation of electromechanical installations on aircraft. According to the author, it represents the first attempt to write a textbook on electric automation. Engineers and technical workers in the field may also find it useful.

COVERAGE: This monograph explains the design and construction principles of components and systems used in the automatic control of electromechanical installations on aircraft. It consists of three main sections: 1) elements of electric

Card 1/11

Electric Automation of Aircraft Electromechanical (Cont.)

automation, 2) electric automation of a controlled speed drive, and 3) electric automation of remote control systems. Some Soviet-produced equipment is discussed. Petrov, B.I., Docent, and Terskov, V.G., assisted in preparing the book for the press. The following Soviet personalities are cited and their contributions in the field discussed: Buylov, A. Ya.; Kovalenko, V.I., and Sotskov, B.S. (p. 23 and p. 76); Tsykin, G.S. (p. 241); Mikhaylov, A.V. (p. 346); Mar'yanovskiy (p. 346); Solodovnikov, V.V. (p. 402, 403, etc); and Voronov, A. A. (p. 412). There are nine bibliographic entries, 7 of which are Soviet, (2 translations) plus references to various Soviet sources which appear in the text and as footnotes on pp. 150, 170, 295 and 395.

Card 2/11

Electric Automation of Aircraft Electromechanical (Cont.)	
TABLE OF CONTENTS:	Page
Preface	3
Part 1. Elements of Electric Automation	
Ch. I. Electromagnetic Systems	5
1. Preliminary considerations	5
2. Contacts and their characteristics	6
3. Mechanical and traction characteristics of electromagnets and their matching	14
4. Tractive force of electromagnets	22
5. Design of magnetic circuits	33
6. Design of electromagnet windings	44
7. Operation time of the electromagnet	56
8. Release time-lag relay	60

Card 3/11

	23
Electric Automation of Aircraft Electromechanical (Cont.)	
Ch. II. Electronic and Ionic Relays	71
9. Types and characteristics of electron tubes used in automatic systems	71
10. Electron-tube relay with an electromagnetic actuating relay	78
11. Noncontact electron-tube relays	86
12. Thyatron design and characteristics	91
13. Thyatron operation when the anode circuit is fed from a dc source	97
14. Thyatron operation when the anode circuit is fed from an ac source	99
Ch. III. Magnetic Amplifiers	106
15. Design and operating principle of magnetic amplifiers	106
16. Applications of magnetic amplifiers	122

Card 4/11

Electric Automation of Aircraft Electromechanical (Cont.)	23
Ch. IV. Pulse Generators	128
17. Pulse generators with capacitor time relays	128
18. Thyatron pulse generator	136
Part 2. Electric Automation of Controlled-speed Drive	
19. Introduction	141
Ch. V. Drive With Dynamotor	142
20. Operating principle of dynamotors	143
21. Characteristics of dynamotors	147
22. The simplest dynamotor system and its defects	154
23. Effect of the feedback potentiometer on the characteristics of a dynamotor	156
24. Characteristics of drive with feedback potentiometer	163
25. Selecting the elements of a drive system	167
26. Connection of stepped-up speed	170
Card 5/11	

Electric Automation of Aircraft Electromechanical (Cont.)	23
Ch. VI. Electric Drive with Reed-type Voltage Regulator	173
27. Principle of operation	173
28. Reed-type voltage drive	177
29. Determination of overrun time and overrun angle for dynamic drive braking	179
Part 3. Electric Automation for Remote-control Systems	
30. Follow-up drive and its basic components	187
Ch. VII. Error Data Units	190
Selsyns Operating in a Transformer Circuit	
31. Design and operating principles of selsyns	190
32. Magnetomotive forces of stator windings	194
33. Relation between the voltage on the receiving selsyn rotor and the displacement angle	199
34. Vector diagram of transformer-selsyns	202
35. The differential selsyn	205

Card 6/11

	23
Electric Automation of Aircraft Electromechanical (Cont.)	
36. Design features and accuracy of selsyns	207
37. Increasing selsyn accuracy with the aid of a "precision channel"	212
Potentiometer Error Data Units	
38. Use of linear potentiometers as error data units	214
39. Effect of load on the operation of potentiometer error data units	219
40. Effect of potentiometer design parameters on their accuracy	223
41. Using functional potentiometers as error data units	226
Ch.VIII. Electron-Tube Amplifiers Used in Follow-up Systems	
42. Types of amplifiers	228
AC Amplifiers	

Card 7/11

	23
Electric Automation of Aircraft Electromechanical (Cont.)	
43. Voltage amplifiers	231
44. Power amplifiers	236
DC Amplifiers	
45. Voltage amplifiers	242
46. Power amplifiers	251
Phase-Sensitive Rectifiers	
47. Triode characteristics when there is an ac emf on the anode circuit and a dc emf on the grid circuit	257
48. Triode characteristics when there is an ac emf on the anode and grid circuits	264
49. Effect of capacitance shunting the anode load	273
50. Using pentodes in phase rectifiers	275
51. Differential phase-sensitive amplifier-rectifier circuits	279

Card 8/11

	23
Electric Automation of Aircraft Electromechanical (Cont.)	
Separation Circuits for the Operation of Coarse and Precision Channel Control	
52. Relay channel separation	283
53. Neon-lamp channel separation	287
Ch. IX. Servomotors	290
54. Characteristics of a dc motor	290
55. Characteristics of a two-phase induction motor	293
Ch. X. Static Characteristics of a Follow-up Drive	302
56. Static characteristics of a follow-up drive with a dynamotor	302
57. Static characteristics of a follow-up drive with an ordinary dc generator	307
58. Static characteristics of a follow-up drive with a two-phase induction motor	310
Card 9/11	

	23
Electric Automation of Aircraft Electromechanical (Cont.)	
Ch. XI. Differential Equations and Transfer Functions for a Follow-up Drive	313
59. Differential movement equations of a follow-up drive with a dynamotor, without stabilizing feedbacks	313
60. Transfer function and block diagram of the drive	318
Ch. XII. Stability of a Follow-up Drive	339
61. Stability conditions	339
62. Application of the Hurvitz criterion	341
63. The Mikhaylov criterion	346
64. Determination of stability from the amplitude- phase characteristic of an open-circuit system	355
65. Logarithmic frequency characteristics	369

Card 10/11

Electric Automation of Aircraft Electromechanical (Cont.)	23
Ch. XIII. Transient Processes in the Follow-up Drive	390
66. Determining transient processes by solution of differential equation	390
67. Determining transient processes by the frequency method	398
68. Transient process caused by load change	415

AVAILABLE: Library of Congress

Card 11/11

AUTHOR: Rabinovich, L.V. 6-58-4-4/18

TITLE: On the Application of Highly-Solid Aluminum Alloys V 95 for the Construction of Geodetical Apparatus (O primeneni vysokoprochnogo alyuminiyevogo splava V 95 v geodezicheskom priborostroyeni)

PERIODICAL: Geodeziya i Kartografiya, 1958, Nr 4, pp. 22-29 (USSR)

ABSTRACT: In the laboratory of a plant, the alloy V-95 was investigated with respect to the possibility of replacing brass LS 59-1 by V 95 in newly projected apparatus. Metallographical investigations such as concerning the technological properties in consideration of the demands made, as well as of corrosion resistance and resistance against downward pressure were carried out. In the case of the new theodolite type TT-5 V 95 is used, so that in the case of TT-50 weight was reduced from 5.2 kg to 3.1 kg. The chemical composition of V 95 according to GOST 4784-49 is: 5-7% zinc, 1.8-2.8% manganese, 1.4-2% copper, 0.2-0.6% magnesium, 0.1-0.25% chromium, not more than 0.5% iron and 0.5% silicon, and the rest is aluminum. When hardened and artificially aged, V 95 has a tensile strength of 52-60 kg/mm², an elongation of 8-12%, and a hardness of 80-90 R_B. Specific weight: 2.8 g/cm³, thermal expansion factor 23.7×10^{-6} .

Card 1/2

On the Application of Highly-Solid Aluminum Alloys
V 95 for the Construction of Geodetical Apparatus

6-58-4-4/18

thermal conductivity factor $0.28 \text{ cal/cm sec}^{\circ}$. The alloy is not magnetic and is subjected to thermal treatment. The application of V 95 requires careful treatment of molds, which must be selected with a minimum of concentrated stress. On the strength of these investigations it may be said that : 1.) V 95 can be widely used instead of brass or low-carbon steels. 2.) V 95 is more suited than brass **IS** 59-1 for the production of parts subjected to friction with low specific stress. 3.) In the case of constant lubrication V 95 can be used without special coatings, but for parts subjected to friction an anode oxidation (strength of anode layer not below $180 H_w$) is to be recommended. 4.) V 95 can also be used for the production of metal parts of optical apparatus. 5.) The oxidized alloy V 95 can be used for the production of the outer parts of apparatus used in zones of moderate climate. In damp and tropical climates the oxide layer must be provided with a coating of protective varnish. There are 2 figures, and 4 tables.

AVAILABLE: Library of Congress

Card 2/2 1. Geodetics--Instrumentation 2. Aluminum alloys--Applications

3(4), 18(4)

SCV/154-59-2-1/22

AUTHOR: Rabinovich, L. V., Engineer

TITLE: The Use of Light Alloys in the Manufacture of Geodetic Instruments (Primeneniye legkikh splavov pri izgotovlenii geodezicheskikh instrumentov)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Geodeziya i aerofotos"yemka, 1959, Nr 2, pp 3 - 5 (USSR)

ABSTRACT: The industry of the USSR produces a great number of light metal alloys: aluminum alloys with a specific weight of 2.7 g/cm^3 and magnesium alloys with a specific weight of 1.8 g/cm^3 . Also titanium alloys, having a specific weight of 4.5 g/cm^3 , have been produced in recent years. Oxide layers having a thickness from a few μ up to 100 are formed by way of an electrical surface treatment of the aluminum alloys. All aluminum alloys are nonmagnetic, their technological properties are satisfactory and in addition, they are cheap. The following aluminum alloys are of importance for the construction of geodetic instruments: duralumin of the D-1 and D-16 type for simple parts which are not subject to wear. Avial' of the AV type for the same parts which, however, are

Card 1/3

The Use of Light Alloys in the Manufacture of Geodetic Instruments SOV/154-59-2-1/22

produced by drop forging. Aluminum-magnesium alloys AMG, AMG 5, AMG 5, AMG 5V, AMG 6, AMG 6T for parts requiring high corrosion resistance (scales, limbs); aluminum alloys for parts drawn by cold-sw-ging. The most interesting is the new high strength aluminum alloy V 95. It serves for the production of parts subject to wear (axes), is not inferior to bronze as regards hardness nor to the unhardened steels, and it exceeds brass in this respect. The tensile strength of V 95 amounts to 50-60 kg/mm². Furthermore, aluminum-silicon alloys AL-2, AL-9 and aluminum-magnesium alloys AL-8, AL-13 are to be employed for the construction of geodetic instruments. In the case of AL-8 the tensile strength amounts to 28 kg/mm², stretching to 9%. AL-8 is highly corrosionproof, is easy to cut and polish. All the alloys mentioned here have so far been employed very little both in the USSR and abroad; this is why instruments are usually heavy and do not meet operational requirements. The alloys in question are recommended here on the strength of factory tests made in the years 1956-1957. At present, most of them are already employed in the mass production. Limbs are also being produced with light metal

Card 2/3

The Use of Light Alloys in the Manufacture of Geodetic Instruments SOV/154-59-2-1/22

alloys. Among the titanium alloys some have already a tensile strength of up to 120 kg/mm^2 with a notch impact strength of $3-6 \text{ kgm/cm}^2$ and a hardness according to Brinell of up to 350 kg/mm^2 . These high mechanical properties of the alloys are preserved at temperatures of up to 500°C : they are, however, suitable also in the case of operations at low temperatures. Titanium can be welded, it is not only corrosionproof in the atmosphere but also in sea water and a number of chemical reagents; it is nonmagnetic; it exhibits a low linear expansion coefficient which almost equals that of optical glass. The use of titanium housings for the reinforcement of glass limbs in theodolites excludes a change of eccentricity in optical theodolites when temperature oscillations occur during operation.

Card 3/3

RABINOVICH, L.V., kand.tekhn.nauk

Equations of a relay servomechanism. Trudy MAI no.146:105-134
'62. (MIRA 15:9)

(Servomechanisms)

RABINOVICH, L.V., kand.tekhn.nauk

Effect of parameters of a relay servomechanism on the boundaries
of phase space regions. Trudy MAI no.146:135-159 '62.

(MIRA 15:9)

(Servomechanisms)

L 1548-66 EWT(d)/EWT(m)/EWP(w)/EPP(c)/EWP(i)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(h)/
EWP(z)/EWP(b)/EWP(l)/ETC(m) IJP(c) MJW/EW/JD/WW/DJ/GS

ACCESSION NR: AT5020440

UR/0000/65/000/000/0164/0167

AUTHOR: Rabinovich, L. V.

TITLE: Use of aluminum alloys in friction junctions of devices

SOURCE: AN SSSR. Nauchnyy sovet po treniyu i smazkam. Teoriya smazochnogo deystviya i novyye materialy (Theory of lubricating action and new materials). Moscow, Izd-vo Nauka, 1965, 164-167

TOPIC TAGS: bearing material, bearing property lubrication, aluminum alloy/ V95 aluminum alloy, AL8U aluminum alloy, MI friction machine

ABSTRACT: The use of aluminum alloys to replace copper bearings in applications requiring extremely small clearances (1.5 micron) and operating under small-to-moderate loads for long periods of time in a range of temperatures of -50 to 50C was investigated (for example, in theodolites, levels, etc). After eliminating a number of alloys, alloys V95 and AL8U were investigated on an MI friction machine at 7 and 21 kg/cm², 0.37 m/sec, 2000 rpm (OKB 122-5 and LK-20 lubricants) and compared with some commercial copper alloys (BrOF 6.5-0.15, LS59-1). It was found that dry operation of V95 and AL8U friction junctions gave smaller

Card 1/2

L 1548-66

ACCESSION NR: AT5020440

coefficients of friction and wear than the copper alloys, that a thin (3-7 micron) oxide film obtained by anodic oxidation improves antifriction and wear properties, that lubrication further improves performance, and that mixed V95-AL8U friction junctions provide best performance (no quantitative results are presented). An extensive program of applied testing of the alloys in actual instruments (at +50 and -40C, under 12-15 mm amplitude, 120 cps vibration, and in 96% humid environment) showed that in all cases the aluminum alloys gave comparable or improved performance over the copper alloys for 10- and 20-year simulated service. (Again no quantitative results are given.) These alloys are recommended to replace copper based bearings.

ASSOCIATION:

None

SUBMITTED: 22May65

ENCL: 00

SUB CODE: ME, IE

NO REF SOV: 000

OTHER: 000

Card 2/2

L 08513-67 EWT(d)/EWP(v)/EWP(k)/EWP(h)/EWP(l)
ACC NR: AM6006282 (N) Monograph

UR/

39
38
B+1

Rabinovich, Lev Vladimirovich

Phase plane methods in the theory and practice of relay servomechanisms (Metody fazovoy ploskosti v teorii i praktike releynykh sledyashchikh sistem) Moscow, Izd-vo "Energiya", 65. 0150 p. illus., biblio. 9,000 copies printed.

TOPIC TAGS: servomechanism, nonlinear automatic control system, automatic control theory

PURPOSE AND COVERAGE: The theoretical bases of engineering methods for the study of relay servomechanisms with nonlinear servo drivers are presented. The method of constructing phase trajectories using templates is described, allowing the rapid determination of the motion with arbitrary mechanical characteristics. The effect of relay unit lag with actuation and release, as well as the effect of aneroid elements before and following the relay, on the dynamic properties of the system is considered. The boundaries in the space of parameters which separate the various types of motion are determined. From the information presented the properties of a specific class of relay servomechanisms can be analyzed and the connection of these properties with the parameters can be established, i.e., certain synthesis problems can be solved. The book is intended for scientific workers, engineers, and

Card 1/2

UDC: 62-50

L 08513-67

ACC NR: AM6006282

advanced students occupied with problems of study and design of nonlinear servo-mechanisms and methods for investigating nonlinear automatic control systems. 14

TABLE OF CONTENTS [abridged]:

Introduction - - 3
Ch. 1. Equations of motion and phase trajectories of relay servo drives - - 9
Ch. 2. Switching lines - - 40
Ch. 3. Natural oscillations of relay servo drives - - 93
Ch. 4. Transition processes in relay servo drives - - 136
Bibliography - - 150

SUB CODE: 09, 13/ SUBM DATE: 25Jun65/ ORIG REF: 023/ OTH REF: 002

Card 2/2 afs

RABINOVICH, L.Ya, kand.med.nauk (Leningrad)

Course of left ventricular aneurysm in a patient with pulmonary tuberculosis. Klin.med. 39 no.5:124-125 My '61. (MIRA 14:5)

1. Iz tuberkuleznoy bol'nitsy Leningradskogo otdela zdravookhraneniya (glavnyy vrach S.P. Burenkov).
(TUBERCULOSIS) (HEART—DISEASES) (ANEURYSMS)

RABINOVICH, M.

Complex power and fuel engineering system for high-pressure
gasification of solid fuels. Gaz.prom. no.6:13-14 Je '57. (MLRA 10:7)
(Coal gasification)

DUDENIKOV, S.; LIVSHITS, A.; PASHOVKIN, A.; YEVSEYEVA, A.; BARLAUKHOV, M.;
VARTANYANTS, S.; RABINOVICH, M.

Results of the industrial tests of the OPSB frother at the
Kadzharan ore-dressing plant. Prom.Arm. 5 no.9:41-45 S '62.

(MIRA 15:9)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut tsvetnykh
metallov (for Dudenkov, Livshits). 2. Nauchno-issledovatel'skiy
gornometallurgicheskiy institut Soveta narodnogo khozyaystva
Armyanskoy SSR (for Pashovkin). 3. Kadzharanskiy kombinat Soveta
narodnogo khozyaystva Armyanskoy SSR ~~(for Yevseyeva, Barlaukhov,
Vartanyants, Rabinovich).~~

(Kadzharan--Ore dressing--Equipment and supplies)

KOMAROVSKIY, Aleksand Borisovich, zhurnalists; RABINOVICH, M., rad.

[A month in the director's chair; a business diary] Mes-
siats v direktorskom kresle; delovoi dnevnik. Moskva,
Politizdat, 1965. 86 p. (MIRA 19:1)

1. Korrespondent "Ekonomicheskoy gazety" (for Komarovskiy).

RABINOVICH, M. A.

Rabinovich, M. S. and Kononova, F. A., On alkaloids from Dipascus Azureus Schrenk.
p. 1510.

From dipsacus azureus is evolved a crystalline alkaloid of composition $C_{10}H_{11}O_2N$ of a non-saturated character containing a lactonic grouping. Dehydroderivative $C_{10}H_{11}O_2N$ is obtained and during oxydation $C_9H_7O_4N$ acid is evolved.

The Grzhonikidze All Union Sci. Res.
Chemico-Pharmaceutical Inst. Lab.
of Chemistry of Alkaloids, Moscow.
April 12, 1947

SO: Journal of General Chemistry (USSR) 18, (80) No. 2 (1948)

CA RABINOVICH, M. A.

29

Mechanism of ignition of methane-air mixtures upon the detonation of explosive materials. K. K. Andreev and M. A. Rabinovich (Moscow Chem.-Tech. Inst., Moscow) *Dokl. Akad. Nauk SSSR*, 24, 620-61 (1968).--Pb. (N₂), Pb trinitroacetate, Hg fulminate, gunpowder, K persulfate, fulminate jelly, and gunpowder + TNT were exploded in a H₂O mist, and the same materials + TNT were exploded in a CH₄-air mist. If the amt. of explosive is above a crit. point (different for each material), ignition takes place. The crit. limits were not the same for both gas mists. The ignition was also affected by the type of explosion (normal, with dispersion of the explosive, flash, or detonation). The reason for this difference is in the time delay for the auto-ignition of the 2 mists. The results are examined in terms of a theory of safety explosives for mining operations. Paul W. Howerton

mining, preparation, shipping

BCA

RABINOVICH, M. A.

1523. De-aired mines in the production of refractories.—M. A. RABINOVICH and P. R. RIMANOV (*Ognepror*, 86, 483, 1951). A discussion on the methods of producing facing tiles for the facade of the buildings of a new university in Moscow. A de-airing pug is used, without repressing. The tiles are made double, i.e. a hollow block is produced and then split into two. This reduces rejects in all production stages, almost doubles output, simplifies the whole process and increases the efficiency of dryers and kilns. One main advantage of tiles made of de-aired mines is a considerable improvement of their physico-mechanical properties. Thus tiles with 1 in. thick walls were unaffected by 30 cycles of freezing, whereas 2.5 in. thick tiles, extruded without de-airing and repressed, cracked after 2-3 freezing cycles. Tile-blocks and specimens prepared from de-aired mines were compared for slag resistance and thermal stability with a type of firebrick and showed good results. It is concluded that de-airing mines for fireclay products improves plasticity, increases bulk density, allows the introduction of 70% grog without detriment to plasticity and also the production of some types of products with ribbon pigs without repressing. (4 figs., 4 tables.)

RABINOVICH, M.A.; BLANK, M.S.; MIKHAYLOV, N.P.

Transferring ring kilns from operating on solid fuel to producer
gas. Ogneupory 18 no.10:435-443 '53. (MIRA 11:10)
(Kilns) (Fuel)

RABINOVICH, M. A.

2030. Production of light-weight fireclay ware with a density of 1.0 g/cm³ at the Salgerekli Refractories Works. M. A. RABINOVICH, M. I. KRIVOF, N. P. MIKHAILOV, and M. I. GUROVA (*Ogneupor*), 21, 76, 1956. In Russian. Insulating refractories can be made from fireclay mixed with sawdust containing 68% moisture. If some of the sawdust is replaced with lignin, appearance and structure will improve but firing-time has to be prolonged to 70-80 hr. Shrinkage is considerable (30-50% higher than with grogged ware). The water content of the mix determines the dimensions of the products after firing. (3 figs., 3 tables.)

5
4E20
Milla

PM mt

~~Rabinovich~~ Rabinovich, M. A.

✓ Preparation of protium and protium oxide. I. M. Yakimko, A. I. Shatenshtein, M. A. Rabinovich, E. A. Yankovleva, Z. M. Borisova, and E. N. Zvyagintseva. *Zhur. Neorg. Khim.* 7, 2507-12(1957); *et. C.A.* 52, 2487g. —
A continuous working app. consisting of a single electrolysis step and a 10-step isotopic exchange assembly was designed for the prepn. of H¹ from water. Protium thus produced contained <0.00001 atom % H² and was further allowed to react with the O of the air to yield "zero water standard" H₂O. The 24-hr. capacity of the set-up was 0.5 l. H₂O. This zero water standard was shown to be suitable for the analysis of H² in natural waters and in the detn. of the value of Dole's correction (*C.A.* 47, 12d). Detailed diagrams of the app. are given. A. P. Kotloby.

6

RABINOVICH, M A.

AUTHOR: Kamenichnyy, M. S. 131-58-6-11/14

TITLE: News in Brief (Kratkiye soobshcheniya).
Production of Ultralight Refractory Products
(Proizvodstvo ultralegkovesnykh ogneuporov)

PERIODICAL: Ogneupory, 1958, Vol. 23, Nr 6, pp. 284-285 (USSR)

ABSTRACT: In March 1958 a meeting took place at the Snigirevo Works for Refractory Products which had been called by the Department for Refractory Products of the Scientific-Technical Society for Metallurgy, and which was devoted to the problem of the mechanization of the production of ultralight refractory products. More than 60 persons took part in the meeting: representatives of the works for refractory materials, of the Leningrad Institute for Refractory Materials, as well as of other organizations. The following reports were heard:

- 1) Ye. A. Fedorova on the technology of the production of ultralight refractory products.
- 2) I. G. Ul'fskiy on machines for molding and grinding light refractory materials.

Card 1/3

News in Brief.

131. 58.6-11/14

Production of Ultralight Refractory Products

- 3) P. S. Potemkin on the drying and burning of refractory light products.
- 4) M. A. Rabinovich on the experience in the production of refractory light materials at the Snigirsko works.

The isolation properties of these products are 2 - 3 times better than those of the other light refractory products. Experiments at the Leningrad Institute for Refractory Products carried out with ultralight refractory products (weight by volume $0.3 - 0.4 \text{ g/cm}^2$) showed that the heat losses decreased by 47 %, the heating period of the kiln by 26 %, and the output per hour increased per 19 %. The production of these products as well as of the usual foamy ones is based on the foaming of water suspensions of clay and chamotte. The mass of the ultralight products contains 80 % of clay and 20 % of chamotte, whereas the mass of the usual light products contains 10 % of clay and 90 % of chamotte. The drying of the ultralight products requires a mild regime and lasts 5 - 6 days. The shrinkage exceeds 15 % which easily causes cracks.

Card 2/3

News in Brief.

Production of Ultralight Refractory Products

131-58-6-11/'4

The burning of ultralight products takes place together with other products in annular kilns. The meeting decided upon recommendations for the mechanization of the molding process and the perfection of drying and burning. A further development of this production was recommended.

1. Refractory materials--Production
2. Industrial plants--Automation
3. Machines--Performance

Card 3/3

SHUMILIN, A.A.; IVANOV, V.A.; RABINOVICH, K.A.; KRIVOI, M.I.

Calcination of lightweight press-molded refractory products with waste additives. Ogneupory 25 no.12:540-545 '60. (MIPA 14:1)

1. Vsesoyuznyy institut ogneuporov (for Shumilin, Ivanov). 2. Snigirevskiy ogneuporny zavod (for Rabinovich, Krivoy).
(Firebrick)

ARTEMOV, Yu.M., kand. ekonom. nauk; GAL'PERIN, N.S., kand. ekon. nauk; GUBIN, B.V., kand. ekon. nauk; ZHUKOV, V.N., kand. ekon. nauk; OCHKOV, M.S., kand. ekon. nauk; OSKORDOV, V.P., starshiy ekonomist; BARNOL'STS, S.B., dotsent, kand. ekon. nauk; SIBIRYAKOV, L.Ye.; IVANOV, N.N.; RABINOVICH, M.A., ekspert; LIPSITS, V.B., kand. ekon. nauk; VOLKOV, S.I., kand. ekon. nauk; KOROLEVA, Ye.P., aspirantka; RYUMIN, S.M., red.; SUBBOTINA, K., red.; TELEGINA, T., tekhn. red.

[Planning and calculating the cost of industrial production] Voprosy planirovaniia i kal'kulirovaniia sebestoimosti promyshlennoi produktsii. Moskva, Gosfinizdat, 1961. 183 p. (MIRA 14:8)

1. Moscow. Nauchno-issledovatel'skiy finansovyy institut. 2. Sotrudniki Nauchno-issledovatel'skogo finansovogo instituta (for Artemov, Gal'perin, Gubin, Zhukov, Ochkov, Oskordov). 3. Vsesoyuznyy zaochnyy finansovo-ekonom. institut (for Barnol'ts). 4. Glavnyy bukhgalter Moskovskogo elektrozavoda (for Sibiryakov). 5. Starshiy konsul'tant Upravleniya bukhgalterskogo ucheta Ministerstva finansov SSSR (for Ivanov, Rabinovich). 6. Nachal'nik podotdela obshchikh ekonomicheskikh voprosov tsenoobrazovaniya Byuro tsen pri Gosplane SSSR (Lipsits). 7. Moskovskiy ekonomiko-statisticheskiy institut (for Koroleva)

(Costs, Industrial)

RABINOVICH, M.A.

Production of lightweight BL 0.5 with use of burning out admixtures. Ogneupory 27 no.6:248-249 '62. (MIRA 15:5)

1. Snigirevskiy zavod ogneuporov.
(Refractory materials)

RABINOVICH, M.A.

Machine for cutting blanks and making furrows in recuperator tubes. Ogneupory 27 no.8:366-367 '62. (MIRA 15:9)

1. Snigirevskiy ogneupornyy zavod.
(Refractory materials)

RABINOVICH, M.A.; GRIGOR'YEV, I.V.

Grog-carborundum recuperators for patenting furnaces. Ogne-
upory 28 no.8:353-355 '63. (MIRA 16:9)

1. Snigirevskiy zavod ogneuporov.

RABINOVICH, M.A.

Increasing the strength of lightweight products. Ogneupory 28
no.9:392-393 '63. (MIRA 16:10)

1. Snigirevskiy zavod ogneuporov.