

BYKHOVSKIY, D.G., inzhener.

New apparatus for connecting and terminating aluminum
conductors. Vest.elektroprom. 27 no.3:10-13 Mr '56.

(MIRA 9:12)

1. Ministerstvo elektromyshlennosti.
(Electric conductors) (Aluminum--Welding)

BYKHOVSKIY, D.G., inzhener; KAPLAN, M.I., inzhener.

Problems in planning and designing welding converters with selenium
rectifiers. Vest. elektropron. 27 no.10:25-28 0 '56. (MIRA 10:9)

1. Zavod "Elektrik."
(Electric current converters)

BYKHOVSKIY, D.G., inzhener.

Use of selenium rectifiers in direct-current arc welding. Vest.
elektropron. 27 no.9:49-51 S '56. (MLRA 10:9)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrovarochnogo
oborudovaniya.

(Electric welding) (Electric current rectifiers)

BYKHOVSKIY, D.G.

SUBJECT: USSR/Welding 135-1-1/14

AUTHORS: Bykhovskiy, D.G., Eng., and Kaplan, M.I., Eng.

TITLE: New Welding Rectifier Systems (Novye skhemy svarochnykh vypryamiteley).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, Nr. 1, pp 1-4 (USSR)

ABSTRACT: A new selenium rectifier СЛК-100/М with automatic voltage decrease at idle run, was developed by VNIIESO (ВНИИЭСО) (probably - All Union Scientific Research Institute for Electro Welding Equipment) - as the first experimental apparatus - in the Zhdanov Works at IZHORA (Izhorskiy Zavod imeni A.A. Zhdanova). It is stated that this system is suitable for future mass production.

The authors have also designed a combined rectifier - system consisting of two separate rectifiers of different power and different idle run voltage, of which the first is called "ignition rectifier" and the other "basic rectifier". This combined rectifier system considerably decreases consumption of material including selenium, and increases efficiency 10 - 15 percent.

Card 1/2

TITLE:

New Welding Rectifier Patterns (Novye skhemy svarochnykh
vypryamiteley).

135-1-1/14

The rectifier CNC-100/W is considered advantageous for
welding in low-power range (up to 100A), and the combined
two-rectifier-system for welding in high-power range (300-
500A and higher).

The article contains 7 diagrams, 1 photograph.
There are no references.

INSTITUTION: VNIIESO

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 2/2

18.7200

66955

SOV/137-59-9-19704

Translation from: Referativnyy zhurnal, Metallurgiya, 1959, Nr 9, p 101 (USSR)

AUTHOR: Bykhovskiy, D.G.

TITLE: Experience in Using Semiconductor Rectifiers in Electric Welding Equipment

PERIODICAL: V sb.: Primeneniye poluprovodnikov v elektrotekhn. Leningrad, 1958, pp 24 - 35

ABSTRACT: Welding rectifiers are, as a rule, assembled according to the three-phase bridge circuit. Operation with semiconductor rectifiers is characterized by a great number of valve elements at high current densities (up to $150 \mu \text{ a/cm}^2$); this requires intensive cooling. The author analyzes operation of parallel switched valve elements. He shows that rectifier operation under transitional conditions is not dangerous for the valve elements as far as overloading with current is concerned. Se-rectifiers are very well able to undergo short-time overvoltage (0.001 sec), contrary to Ge-rectifiers. Best results are obtained with Si rectifiers, since their operating temperature is 200 - 250°C.

Card 1/1

A.N.

AUTHOR: Bykhovskiy, D. G. Engineer.

SOV-110-58-9-9/20

TITLE: Circuit for Reducing Automatically the No Load Voltage of a
Welding Rectifier (Skhema dlya avtomaticheskogo snizheniya
napryazheniya kholostogo khoda svarochnogo vypryamitelya)

PERIODICAL: Vestnik Elektropromyshlennosti
(USSR)

1958, Nr 9, pp 34-36

ABSTRACT: The author developed and investigated (in the Physics
Laboratory of VNIIESO) a circuit for reducing the no-load
voltage of welding rectifiers; this circuit contains no
relays and saturation chokes are used for the purpose of
obtaining the necessary shape of the external characteristic
and for regulating the welding current (Fig.1). The opera-
tion of the circuit is based on the possibility of changing
rapidly the resistance of saturation chokes within wide
limits. During no-load operation the arc gap is open and
the current in the magnetization circuit is blocked by the
rectifier units of the main and the magnetization circuits.
On closing of the main circuit the magnetization circuit is
automatically closed, the resistance of the saturation chokes
drops to a certain value which is determined by the para-
meters of the magnetization circuit. The external charac-
teristics, shown in Fig.1, differ from

Card 1/3

Circuit for Reducing Automatically the No Load Voltage of a Welding Rectifier

SOV-110-58-9-8/20

teristics of standard type welding rectifiers with independent current supply of the magnetization windings; this is due to the fact that in the proposed circuit the magnetization current depends on the arc voltage. Fig.3 shows the equivalent circuit of this circuit arrangement. In the case of changes of the arc length, the external characteristic is shifted and this explains the shape of the external characteristic of the supply source built according to the proposed arrangement. A drawback of the rectifier block will be that in the case of arc breaks the rectifier block will be subjected for 0.1 to 0.2 sec to the full no-load voltage, i.e. the no-load voltage will be reduced to the permissible rated value after a short but finite time which is determined by the transient phenomena in the saturation chokes. However, tests have shown that selenium rectifiers withstand considerable short duration overvoltages during no-load operation.

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SCV-110-58-9-8/20

Circuit for Reducing Automatically the No Load Voltage of a Welding Rectifier

Due to absence of relays, this circuit is very reliable and since it permits obtaining relatively flat characteristics, the range of utilisation of welding rectifiers is considerably extended. There are 4 figures and 2 Soviet references.

SUBMITTED: May 4, 1957.

1. Rectifiers--Circuits
--Equipment
2. Rectifiers--Performance
3. Welding

Card 3/3

18(4)

SOV/32-24-12-15/45

AUTHOR:

Bykhovskiy, D. G.

TITLE:

Methodology of X-Ray Investigations on Point Welding of Duraluminum Alloys (Metodika rentgenograficheskogo issledovaniya tochechnoy svarki duralyuminiyevykh splavov)

PERIODICAL:

Zavodskaya Laboratoriya, 1958, Vol 24, No: 12, pp 1458-1459 (USSR)

ABSTRACT:

The possibilities of using metallographic analysis for studying the complex metallurgical processes which take place in point welding of duraluminum alloys are very limited. Investigations have shown that the first insight into this transformation can be obtained by using a combination of micro-roentgenography and X-ray structure analysis. The qualitatively best results were obtained using the absorption method, since the basic components of duraluminum (Cu and Al) exhibit a difference in their coefficients of linear absorption of X-rays. For this method in micro-roentgenography the URS-70 apparatus and the tubes of type BSV-4 with a molybdenum anode are recommended. The point welding of the alloy D20 (6-7% Cu, 0.4-0.8% Mn, 0.1-0.2% Ti - the rest Al) were X-rayed (Figure), and the

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Methodology of X-Ray Investigations on Point Welding of Duraluminum Alloys

SOV/32-24-12-15/45

composition of the phases in the various zones of the micro-roentgenograms were investigated with X-ray structure analysis. The investigations showed that the cast nucleus and the zone in which the maximum plastic deformation takes place at higher temperatures consist of a solid α -solution of copper and manganese in aluminum (with inclusion of the inter-metallic compound CuAl_2). The concentration of CuAl_2 present in the zones varies. The results obtained indicate that the described method would be suitable for the investigation of the welding of other alloys. There is 1 figure.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (All-Union Scientific Research Institute for Electric Welding Apparatus)

Card 2/2

BYKHOVSKIY, D.G., inzh.

Circuit for automatic decrease of idle-running voltage of welding
rectifiers. Vest. elektroprom. 29 no.9:34-36 S '58. (MIRA 11:10)
(Electric current rectifiers) (Electric welding)

8864A

S/110/61/000/001/017/023
EO73/E455

1.1110

AUTHORS: Bykhovskiy, D.G., Engineer and Fridlyand, M.G., Engineer

TITLE: Cutting of Copper by Means of a Concentrated Arc

PERIODICAL: Vestnik elektropromyshlennosti, 1961, No.1, pp.55-57

TEXT: Investigations of the cutting ability of plasma generators using a variety of gases and gas mixtures have shown that the highest arc voltage (100 to 120V), and consequently also the highest specific power, can be obtained for a plasma generator by using as the cutting gas pure hydrogen. This fact is attributed to the high thermal conductivity and the high ionization potential of this gas. Since hydrogen is much lighter than argon and nitrogen, the gas speed is much higher. This also improves the possibility of blowing away the molten metal from the cutting zone. VNIESO developed a plasma generator, powered by a 6-phase rectifier system with ignitron rectifiers. This system ensures a no-load voltage of 250 to 300 V; the supply source has a falling characteristic, and for regulating the current within the necessary limits (150 to 350 A) a variable ballast resistance is used. The main requirement to be met by the head of the plasma generator intended

Card 1/4

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S/110/61/000/001/017/023
E073/E455

Cutting of Copper by Means of a Concentrated Arc

for cutting copper is an accurate centering of the tungsten electrode in the nozzle hole, since otherwise it would be impossible to cut copper at all. Several designs have been developed which take into consideration the necessity of absolutely reliable centering of the electrode; a photograph of one of these is reproduced in Fig.1. Usually, tungsten electrodes of 6 mm dia are used which show less burn-off during operation and are more rigid than electrodes of smaller diameter. The end of the tungsten electrode is machined into a truncated core with a diameter of 1.5 mm at the narrow end; this has a great directional effect on the gas flow, bringing about narrowing of the gas discharge and, consequently, an increase in the specific power of the plasma generator. It proved possible to carry out stable cutting of copper up to 80 mm thick with the equipment designed by VNIIESO. A photograph is reproduced showing the cuts made in sheets 35 mm thick. The generators that have been made can be used for cutting copper sheets 10, 20, 30, 35 and 45 mm thick at speeds of 40-50, 25-30, 12-15, 8-10 and 6-8 m/h, respectively. Plasma generators
Card 2/4

88644

S/110/61/000/001/017/023
E073/E455

Cutting of Copper by Means of a Concentrated Arc

were used in the "Elektrik" plant for cutting components from pure copper up to 80 mm thick. The use of concentrated arcs for cutting copper and copper alloys increased productivity some 15 or 20 times, compared with conventional methods. A further advantage is that there is less waste than in the case of mechanical cutting since the width of the cut is smaller by a factor of two or three. There are 2 figures:

Card 3/4

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E073/E455

Cutting of Copper by Means of a Concentrated Arc



Fig.1.

Рис. 1. Общий вид головки
плазмодгенератора.

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S/135/61/000/005/006/011
A006/A101

AUTHORS: Bykhovskiy, D. G., Bogorodskiy, Yu. A., Engineers

TITLE: Gas electric cutting of metal plates

PERIODICAL: Svarochnoye proizvodstvo, no. 5, 1961, 16 - 18

TEXT: The mechanized gas-electric cutting of over 100 mm thick non-ferrous metals and stainless steel was for the first time in the world practice achieved with the aid of equipment developed by VNIIESO, including an arc cutting torch, a power supply source for the electric arc and a control system. Pouring channels of 100 x 100 mm section can now be cut off cast-iron, silumin, copper and copper alloy castings with satisfactory quality of the edges. The advantages of the new equipment are: greater thickness of the material to be cut, higher cutting speed, lower gas and electric power consumption. Cutting is performed with an arc burning in the gas flow between a tungsten electrode and the work piece. The cutting process has the following technological peculiarities: independence of the arc current on the thickness of the cut metal; correlation of the thickness of cut metal and arc voltage; the cutting process has to be conducted at initial and operational speed. A formula is given showing the dependence be-

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Gas electric cutting of metal plates

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A006/A101

J

tween the thickness of the material and the arc voltage: $U_{arc} = \frac{A}{S} + B \cdot \lg S$, where U_{arc} is the arc voltage in v; S is the thickness of the plate in mm, A and B are the coefficients depending on the composition and rate of the gas feed and on the nozzle diameter of the arc torch. The narrow range of regulating the operational current and the relatively wide range of changes in the arc voltage are specific peculiarities of gas-electric cutting, requiring new ways of considering the problem concerning the electric arc power supply source. Investigations carried out in this direction proved that the most efficient power supply source is a rectifier on semi-conductor valves and an improved control stray transformer. This power source is efficient, light, small-sized, simple and reliable. VNIIESO developed moreover a power source on the basis of multiampere selenium rectifiers assembled by a three-phase push-pull circuit with 270 v idle-run voltage and stable burning of the arc up to 450 amp current; and a power source with ignitron rectifiers. Metallic ignitrons И-70/0.08 (I-70/0.08) and И-140/0.8 (I-140/0.8) assembled by various systems were investigated, including a three-phase push-pull and a six-phase single-cycle circuit (Figure 3). The main deficiency of ignitron rectifiers is the need of a ballast rheostat. Therefore, they will remain in use only until series production of sufficiently cheap silicon rectifiers will be organized. The new type arc-cutting torches present a series of advantages, such as satisfactory centering of the electrode in respect to the nozzle; reliable

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A006/A101

Gas electric cutting of metal plates

electric insulation of the electrode and the nozzle; hermetic nozzle cooling system, intensified cooling and simple nozzle design. The T-2 arc torch (Figure 4) consists of two silumin castings containing the adapter with the electrode and the nozzle. The insulation of the nozzle and the electrode is achieved by the use of epoxy resin. Furthermore the possibility was studied of using high-temperature fluoroplastic and super-porelain insulators for arc torches. The development of the described equipment makes it possible to consider the centralized cutting of sheet material so that savings of scarce metal and a reduction of preparatory operation costs will be achieved, and a great number of metal cutting mills will be liberated which presently are needed for mechanical cutting of metals unsuitable for oxygen cutting process. There are 1 table, 5 figures, 7 references 4 Soviet and 3 non-Soviet. X

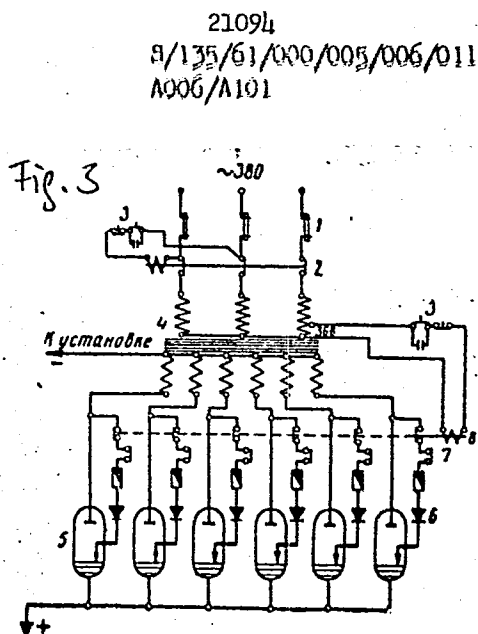
ASSOCIATION: VNIIESO

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Gas electric cutting of metal plates

Figure 3:

Six-phase single-cycle circuit of ignitron rectifier: 1 - fuse; 2 - magnetic starter; 3 - push-button set; 4 - transformer; 5 - ignitrons; 6 - selenium rectifier; 7 - hydrorelay contacts; 8 - intermediate relay.



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Bykhovskiy D.G.
BYKHOVSKIY, D.G., inzh.; FRIDLJAND, M.G.

Cutting copper with a focused arc. Vest. elektroprom. 32 no.1:55-57
Ja '61. (MIRA 14:3)
(Copper) (Electric metal cutting)

37669

S/125/62/000/004/007/013
D040/D113

1.1110

AUTHOR: Byichovskiy, D.G.

TITLE: Cutting metals by penetrating arc with combined gas shielding

PERIODICAL: Avtomaticheskaya svarka, no. 4, 1962, 48-53

TEXT: The essence of the described new method is cutting by a tungsten electrode held in a cutting head with two channels for separate feed of two different gases for shielding the anode and cathode portions of the arc (Fig.5). The principle was developed initially at the Institut elektrosvariki im. Ye.O.Patona (Electric Welding Institute im. Ye.O.Paton). Combined gas blowing prevents the formation of a double arc which would spoil the metal and the cutting head. Narrow and smooth cuts are obtained in 10 mm thick stainless steel, or 150 mm thick aluminum, cast iron, and other metals. Different combinations can be used, e.g. argon-hydrogen, argon-air, argon-nitrogen, hydrogen-nitrogen, etc. The quality of cuts is the same as in

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Cutting metals by penetrating arc ...

S/125/62/000/004/007/013
D040/D113

conventional argon-hydrogen cutting, but the new method reduces the arc voltage, makes the process very stable, increases the cutting efficiency, reduces the electric power consumption, and greatly increases the life of tungsten electrodes and nozzles. The equipment consists of a standard welding transformer, a cutting head, and gas containers. A manual head, shown in a photo, uses argon and air, consumes one tenth of the argon usually consumed, and is claimed to be a promising tool for underwater or pipe cutting or cutting in the continuous casting process. It starts cutting from any point on the metal since no hole has to be prepared to start the process. There are 5 figures. 24

ASSOCIATION: VNIIESO

SUBMITTED: August 19, 1961

Card 2/1 2

ACCESSION NR: AP4024191

S/0294/64/000/001/0065/0070

AUTHORS: By*khovskiy, D. G.; Fridlyand, M. G.

TITLE: Investigation of heat fluxes in an extended spatially-limited arc in an argon medium

SOURCE: Teplofizika vy*sokikh temperatur, no. 1, 1964, 65-70

TOPIC TAGS: electric arc calorimetry, heat transfer to electrodes, coolant thermodynamic characteristics, heat flux temperature dependence, heat transfer to coolant

ABSTRACT: An instrument is described, developed at VNIIESO, to measure the heat transfer from an arc to its electrodes, in which the heat is carried away from the electrodes via the phase-transition energy of boiling distilled water. The advantages claimed for this method are constancy of the thermodynamic characteristics of the cooling medium, constancy of the cooling temperature during the

Card 1/6

ACCESSION NR: AP4024191

course of the investigation and the resultant independence of the heat losses in the measuring system on the power released by the arc electrodes, simplicity of the scheme, and possibility of investigating the effect of the temperature of the cooling medium on the heat flux to the electrodes. The tests were made on an arc burning in argon, with power up to 15 kW and current up to 350 A. The effect of variation of the argon flow on the heat transfer was investigated for different values of the arc current and power. The heat transfer to the anode decreased with increasing argon flow for all values of arc power, and the heat transfer to the gas increased continuously with increasing gas flow. Orig. art. has: 7 figures and 1 formula.

ASSOCIATION: Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo-oborudovaniya (All-Union Scientific Research Institute of Electric Welding Equipment)

Card 2/6

ACCESSION NR: AP4024191

SUBMITTED: 11Nov63

DATE ACQ: 16Apr64

ENCL: 03

SUB CODE: PH, SD

NR REF SOV: 002

OTHER: 005

Card 3/6

BYKHOVSKIY, D.G.; FRIDL'YAND, M.G.

Heat flows in an extended spatially bounded arc glowing in an argon medium. Teplofiz. vys. temp. 2 no.1:65-70 Ja-F '64.
(MIRA 17:3)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya.

BR

ACCESSION NR: AP4029256

S/0125/64/000/004/0043/0046

AUTHOR: By*khovskiy, D. G. (Candidate of technical sciences); Kunin, V. S.
(Engineer)

TITLE: Some quantitative relations in penetrating-arc cutting

SOURCE: Avtomaticheskaya svarka, no. 4, 1964, 43-46

TOPIC TAGS: metal cutting, metal arc cutting, metal gas electric cutting, metal penetrating arc cutting

ABSTRACT: Test equipment included the following units: a power source with external static characteristics set by saturable reactors; a modernized ADS-1000 tractor for advancing a T-12 arc head (sketch supplied) with a speed within 3-150 m/hr; a control unit. Copper and steel 35-mm thick and aluminum 40-mm thick were used in the gas-electric cutting experiments. Argon flow was 8 lit/min; hydrogen, 50-65 lit/min; air, 190 lit/min. It was found that: (1) The cutting

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ACCESSION NR: AP4029256

speed is directly proportional to the current; (2) The coefficient of utilization of the arc power is directly proportional to the current; (3) The arc voltage, at max cutting speed, is practically independent of the current and kind of metal; (4) The arc voltage, at a given current, is inversely proportional to the ratio of linear speed of the head to the maximum possible cutting speed; (5) The cut width is practically independent of the current and is determined by the head design. Orig. art. has: 6 figures.

ASSOCIATION: BNIESO (All-Union Scientific Research Institute of Electric Welding Equipment)

SUBMITTED: 08Jul63

DATE ACQ: 27Apr64

ENCL: 00

SUB CODE: *mm*

NO REF SOV: 000

OTHER: 000

Card 2/2

L 23332-65

ACCESSION NR: AP5001193

S/0125/64/000/012/0056/0060

AUTHOR: Bykhovskiy, D. G. (Engineer); Suladze, R. N. (Engineer) 1
B

TITLE: Volt-ampere characteristics of a constricted arc

SOURCE: Avtomaticheskaya svarka, no. 12, 1964, 56-60

TOPIC TAGS: constricted arc, volt ampere arc characteristics, high frequency arc component, arc welding

ABSTRACT: The knowledge of the potential distribution along the various sections of the arc is essential for the proper selection of the geometry of the nozzle of a constricted arc and of the optimal working conditions such as current, gas composition, etc. In arcs with an anode which is insulated from the nozzle, the section of the arc inside the anode is of a particular importance as it is instrumental in the arc stabilization and in the determination of its diameter. The present paper reports the results of an investigation of the voltage distribution along the various sections of the constricted-arc. The volt-ampere characteristics were

Card 1/2

Σ 22644-65 EWP(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b) PF-4 JD/HM
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ACCESSION NR: AF5001174

S/0135/64/000/021/0031/0032 8

AUTHOR: Bykhovskiy, D. G. (Candidate of technical sciences); Kuzin, V. B. (Engineer)

TITLE: The role of hydrogen during cutting with an immersed arc 6

SOURCE: Svarochnoye proizvodstvo, no. 12, 1964, 31-32

TOPIC TAGS: arc cutting, immersed arc cutting, metal cutting, hydrogen supply, steel cutting, aluminum cutting, copper cutting

ABSTRACT: The paper considers 3 methods of gas supply for cutting with an immersed arc. Usually, argon is delivered to the cathode with air being supplied to the outer nozzle for both manual and machine cutting and aluminum alloys up to 40-50 mm thick (Method I). Delivery of hydrogen improves the capacity of the cutting operation when it enters the outer nozzle together with the air (Method II). For the second method, the voltage was lowered, but delivery of hydrogen improved the strength of the arc and increased the cutting speed. Hydrogen delivery increased the cutting speed of steel 1.25 times, aluminum 1.5 times and copper 4.5 times. Heat losses were lowered due to the increased heat transmission to the sheet. Method III consists of delivery of hydrogen together with argon, leading to significant

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ACCESSION NR: AP5001174

increases in voltage and cutting speed. Tests were also performed with compounds containing hydrogen (propane, butane), but they did not change the cutting speed. The hydrogen should be delivered in pure condition. The paper also concludes that the hydrogen should be delivered to the cathode. The advantage of using hydrogen is clearer when the cut metals have high heat conductivity. It is not advisable to cut aluminum and steel of a thickness above 60 mm and copper of a thickness above 30 mm without hydrogen, while aluminum and steel of a thickness above 100 mm and copper above 50 mm cannot be cut without using hydrogen. The effect of hydrogen application on the cutting speed increases with the amperage. Orig. art. has: 1 figure and 1 table.

ASSOCIATION: VNIIESO

SUBMITTED: 00

ENGL: 00

SUB CODE: IE

NO REF SOV: 001

OTHER: 000

Card 2/2

BYKHOVSKIY, D.G.; FRIDLYAND, M.G.

Heat balance of an extended spatially bounded arc burning in a
two-component gaseous medium. Teplofiz. vys. temp. 2 no.3:329-332
My-Je '64. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut s elektrosvarochnogo
oborudovaniya.

BYKHOVSKIY, D.G.; KUNIN, V.S.

Some quantitative ratios in cutting with a penetrating arc.
Avtom. svar. 17 no.4:43-46 Ap '64 (MIRA 18:1)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut elektro-
svarochnogo oborudovaniya.

BYKHOVSKIY, D.G., kand. tekhn. nauk; BOGORODSKIY, Yu.A., inzh.;
ROGOV, V.D., inzh.

Hand operated gas electric cutting torch. Sudostroenie 30
no.11:49-52 N '64. (MIRA 18:3)

BYKHOVSKIY, D.G., kand. tekhn. nauk (Leningrad); FRIDL'YAND, M.G., inzh.
~~(Leningrad)~~

Electrical parameters of a long hydrogen containing spatially limited
arc. Elektrichestvo no.6:73-75 Je '65. (MIRA 18:7)

ZUSIN, V.Ya., inzh.; BYKHOVSKIY, D.G., kand. tekhn. nauk, rukovoditel' raboty; DOBROTINA, Z.A., kand. tekhn. nauk, rukovoditel' raboty

Nomograph for determining the optimal speed of gas electric metal cutting. Svar. proizvod. 12:33-34 D '63. (MIRA 18:9)

1. Zhdanovskiy metallurgicheskiy institut (for Zusin, Dobrotina).
2. Vsesoyuznyy nauchno-issledovatel'skiy institut elektrosvarochnogo oborudovaniya (for Bykhovskiy).

BYKHOVSKIY, D.G., kand. tekhn. nauk (Leningrad); FRIDLYAND, M.G., inzh.
(Leningrad)

Study of the electrical parameters of a lengthy space-limited
arc burning in argon medium. Elektrichestvo no.12:53-57 D '64.
(MIRA 18:12)

BYKHOVSKIY, David Grigor'iyevich; DOBROLENSKIY, V.P., kand. tekhn.
nauk, retsenzent; RUSSO, V.L., retsenzent; KHAZOV, V.Ya.,
nauchn. red.; TURANDINA, L.A., red.

[Oxygen-arc cutting of metals in shipbuilding] Gazoelektri-
cheskaia reyka metallov v sudostroenii. Leningrad, Sudostroc-
enie, 1964. 167 p. (MIRA 17:5)

21.4200

21392
S/186/60/002/006/022
E071/E433

AUTHORS: Bykhovskiy, D.N. and Grinberg, A.A.

TITLE: Coprecipitation of trivalent cerium with uranium oxalate

PERIODICAL: Radiokhimiya, 1960, Vol.2, No.2, pp.164-174

TEXT: There are many phenomena in the field of coprecipitation of an admixture with a non-isomorphic carrier which are not sufficiently explained. For this reason, the authors investigated the coprecipitation of cerium with uranium oxalate. The determinations of uranium were made by titration with potassium permanganate and of cerium by β activity, using cerium-144 as an indicator. The crystallization experiments were carried out at $20 \pm 1^\circ\text{C}$. On precipitation of small quantities of uranium (IV) from the supersaturated solution (20 to 40 mg in 100 ml of solution) in the presence of an excess of oxalic acid, the distribution of cerium between the precipitate and solution corresponded to the logarithmic formula. At a certain excess of oxalic acid, the crystallization coefficient λ remains constant, irrespective of the amount of the carrier precipitated. With an increasing concentration of oxalic acid λ noticeably increases (e.g. with an excess of $\text{H}_2\text{C}_2\text{O}_4$ of 0.01M $\lambda = 1.9$ and

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Coprecipitation of trivalent ...

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S/186/60/002/002/006/022
E071/E433

0.02 M $\lambda = 2.4$). Although the solubility of cerium oxalate under experimental conditions (at a concentration of hydrochloric acid of 1 M and of oxalic acid of 0.01 M the solubility of cerium oxalate is 500 times higher than that of uranium oxalate) was considerably higher than the solubility of uranium oxalate, yet the enrichment of the solid phase by cerium was observed. On coprecipitation of cerium in the absence of an excess of oxalic acid, the crystallization coefficient λ decreases. The influence of pH on λ was investigated within a range of hydrochloric acid concentrations from 0.5 to 3 M. The results indicate that the coprecipitation is governed by the concentration of oxalate ions. The influence of the concentration of cerium on its coprecipitation was studied by means of additions of non-active cerium up to concentrations comparable to the uranium concentration. At low concentrations of cerium (below 10^{-6} M) its coprecipitation is independent of the concentration. At higher concentrations, not exceeding the solubility of cerium oxalate under experimental conditions, crystals with a definite uranium to cerium ratio, independent of their ratio in the solution, are precipitated. The composition of the precipitates obtained at a concentration of

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cerium of 10^{-3} M is characterized by the ratio of $U:Ce:C_2O_4 = 3.9:1.0:9.5$ which corresponds to the formula $8U(C_2O_4) \cdot Ce_2(C_2O_4)_3$ (water of crystallization not taken into account). The ratio of uranium to cerium in the precipitate left in contact with the solution steadily increases. Since the coprecipitation of cerium takes place in accordance with the laws of primary adsorption, it was expected that cations which are capable of some interaction with uranium ions should have some influence on the coprecipitation of cerium. The experimental results show that bismuth and calcium salts ($Bi(NO_3)_3, CaCl_2$) lower the coefficient of crystallization (λ) while other admixtures tested (KCl, K_2SO_4, UO_2Cl_2) have a similar influence when present at higher concentrations (0.1 to 0.5 M). On prolonged contact of the crystals obtained by coprecipitation of uranium and cerium with the solution, the return of cerium from the solid phase into the liquid phase is always observed. It is a characteristic feature of the system studied that the approach to equilibrium is attained with great difficulty and, in practice, the mixed crystals are never in equilibrium with the solution. The concentration of cerium in the solution increases with time and does not attain a constant value in five to eight months. The true
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coefficient of crystallization D is only $(1-3) \times 10^{-3}$ and the fact that $\lambda \gg D$ is the main feature of the system which presents difficulties in placing it in the existing classification of coprecipitation processes. There are 1 figure, 10 tables and 16 references: 12 Soviet-bloc and 4 non-Soviet-bloc. The four references to English language publications read as follows:

H.M.Dawson, Ch.R.Hoskins, J.E.Smith, J.Chem.Soc., 1884 (1929);

H.M.Dawson, J.E.Smith, J.Chem.Soc., 2530 (1929);

J.M.Kolthoff, Ch.Rosenblum, J.Am.Chem.Soc., 56, 1658 (1934);

A.H.Booth, Trans.Parad.Soc., 47, 633 (1951).

SUBMITTED: July 9, 1959

Card 4/4 ;

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S/186/61/003/005/003/022

E071/E485

21.4300

AUTHORS: Grinberg, A.A. and Bykhovskiy, D.N.

TITLE: Coprecipitation of microquantities of thorium
(uranium X₁) with uranium oxalate

PERIODICAL: Radiokhimiya, v.3, no.5, 1961, 528-534

TEXT: Since oxalates of thorium and tetravalent uranium are isomorphic and ions of U⁴⁺ and Th⁴⁺ are close in their dimensions, an isomorphic coprecipitation should take place in this system. The authors studied this coprecipitation process under various crystallization conditions in order to find out how the process could be utilized for the separation of the thorium isotope. uranium X₁, from uranium salts. It was also intended to compare the behaviour of an isomorphic admixture with a non-isomorphic one, e.g. with the coprecipitation of trivalent cerium with uranium oxalate which was studied previously (Ref.5: D.N.Bykhovskiy, A.A.Grinberg, Radiokhimiya, v.2, 2, 164 (1960)). The experimental procedure was the same as in the abovementioned work. It was found that on precipitation of uranium X₁ with uranium oxalate from a supersaturated solution the distribution of uranium X₁
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corresponds to the logarithmic formula. The coefficient of distribution λ increases with increasing concentration of oxalate ions. The isomorphic system $UX_1(C_2O_4)_2 - U(C_2O_4)_2$ differs from the non-isomorphic $Ce^{III} - U(C_2O_4)_2$ system in its stability of the mixed crystals formed. Since UX_1 coprecipitates with uranium oxalate (IV) with an enrichment of the solid phase, its quantitative separation can be achieved on precipitation of small quantities of uranium (IV). By precipitating UX_1 in the form of oxalate with some uranium (IV) it can be separated from the main mass of uranium present in the six valent state. Preliminary synthesized oxalate can be used as a source of the tetravalent uranium. In the dry state, this salt can be stored. The necessary amount of uranium oxalate can be dissolved on heating in an aqueous solution of either potassium or ammonium oxalate (2 moles of $K_2C_2O_4$ or $(NH_4)_2C_2O_4$ per 1 mole of $U(C_2O_4)_2$). The other method is to reduce with rongalite a small amount of six valent uranium present in the solution from which UX_1 is to be separated. The best results were obtained when the initial concentration of uranium (IV) was about 30 g/litre, under these conditions an enrichment by a factor of 100 is obtained with practically complete X

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separation of UX_1 . The presence of a large quantity of uranyl makes the precipitation of tetravalent uranium oxalate difficult. In such cases, it is advantageous to first precipitate uranyl oxalate and then from the filtrate, containing a small quantity of uranium and practically the whole UX_1 , separate UX_1 with oxalate of tetravalent uranium. By repeating the process, the necessary degree of enrichment in UX_1 can be obtained. The subsequent separation of UX_1 from uranium can be done using an iron exchange resin. The authors used cationite $KV-2$ ($KU-2$). Thus a method of separation of uranium X_1 from uranium based on the ability of uranium X_1 to coprecipitate with uranium oxalate and not to coprecipitate with uranyl oxalate was developed. It is claimed that this method can compete with the ether extraction normally used for this purpose. There are 5 tables and 10 references: 5 Soviet-bloc, 1 a Russian translation from non-Soviet-bloc publication and 4 non-Soviet-bloc. The three references to English language publications read as follows:

Ref.3: A.H.Booth, J. Chem. Educ., v.28, 3, 144 (1951);
Ref.4: A.E.Taylor, P.T.Dillon, Anal. Chem., v.24, 10, 1624 (1952);
Ref.6: M.Bose, D.M.Chowdhury, J. Indian Chem. Soc., v.31, 2, 111 (1954). X

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Coprecipitation of microquantities ... ³¹⁸⁸⁶S/186/61/003/005/003/022
E071/E485

SUBMITTED: May 27, 1960

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31887
S/186/61/003/005/004/022
E071/E485

AUTHOR: Bykhovskiy, D.N.

TITLE: Coprecipitation of trivalent cerium with thorium oxalate

PERIODICAL: Radiokhimiya, v.3, no.5, 1961, 535-543

TEXT: The fact that on precipitation of thorium in the form of oxalate its separation from rare earth elements is not achieved has not been satisfactorily explained. For this reason, the author studied the phenomenon of non-isomorphic coprecipitation of cerium with thorium oxalate. In the majority of experiments, the coprecipitation of microquantities of cerium was studied. Cerium¹⁴⁴ was used as an indicator. The experimental procedure was described previously (Ref.3: D.N.Bykhovskiy, A.A.Grinberg, v.2, no.2, 164 (1960)). It was established that under conditions of coprecipitation as well as of precipitation on preliminarily prepared crystals, cerium penetrates inside the crystals of thorium oxalate. No lower limit of concentration for the formation of mixed crystals was observed. The crystals formed on precipitation of thorium oxalate in the presence of radioactive cerium, contain more than an equilibrium amount of cerium. The approach to the
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equilibrium is exceptionally slow. It was found that the precipitation of cerium¹⁴⁴ and thorium isotope (UX₁) on prepared crystals of thorium oxalate is of a different nature. This is apparently due to the difference in the velocities at which the equilibrium in respect of these two radioactive elements can be established. It is stated that the data obtained indicated that the specific feature of the system investigated is a considerable difference in the composition of mixed crystals obtained on coprecipitation of thorium and cerium oxalates and that of crystals obtained on a prolonged contact of the solid phase with the solution (in the latter case the content of cerium is lower). Thus for the system investigated similar to the system Ce^{III}-U(C₂O₄)₂, there is no indisputable place in the existing classification of the coprecipitation phenomena. The author expresses thanks to Academician A.A. Grinberg for his interest in the work. There are 7 tables and 15 references: 9 Soviet-bloc, 2 Russian translations from non-Soviet publications and 4 non-Soviet-bloc. The references to English language publications read as follows:
 Ref. 4: F.A. Gooch, M. Kobajashi, Am. J. Sci., v. 45, 227 (1918);
 Ref. 5: L.A. Sarver, P.H. Brinton, J. Am. Chem. Soc., v. 49, 4, 943 (1927).

SUBMITTED: May 27, 1960
 Card 2/2

X

5.4200

S/O20/62/145/004/021/024
10085
B101/B138

AUTHOR: Bykhovskiy, D. N.

TITLE: Some regularities of coprecipitation on the formation of anomalous mixed crystals

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 145, no. 4, 1962, 845-848 J

TEXT: The author discusses the applicability of the equations of V. G. Khlopin (Izbr. tr. (Selected Works), 1, Izd. AN SSSR, 1957, p. 104), L. M. Henderson, F. C. Kracek (J. Am. Chem. Soc., 49, 3, 738 (1927)), and H. A. Doerner, W. M. Hoskins (J. Am. Chem. Soc., 47, 2, 662 (1925)) to special cases of anomalous coprecipitation from supersaturated solution with logarithmic distribution of the components. Results: (1) The Khlopin and Henderson-Kracek equations only apply where there is thermodynamic equilibrium. (2) Where both components occupy similar sites in the crystal lattice and compete with each other during crystallization, the Doerner-Hoskins equation applies. (3) Where transition of the microcomponent into the crystal is independent of the concentration of the macrocomponent and V_{liq} , the volume of the liquid phase, remains constant, Card 1/2

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$\log a/(a - x) = \kappa y/V_{liq}$. Here a is the concentration of the microcomponent in the liquid phase; x, y are the quantities of micro and macrocomponent, respectively, in the precipitate, and κ is a coefficient. The validity of this equation was proven by coprecipitating Ca^{45} with uranium or thorium oxalate. κ was $(3.1 - 3.4) \pm 0.2$. (4) When transition of the microcomponent into the precipitate is expedited by the presence of the macrocomponent, $\log a/(a - x) = \nu y (b - y/2)/V_{liq}^2$, where b is the concentration of the macrocomponent in the liquid phase and ν is a coefficient. The difference between the equations cited can be made quite clear by varying the degree of coprecipitation of the carrier, which is easy to do by using poorly soluble salts. There are 2 tables. ✓

PRESENTED: April 10, 1962, by A. A. Grinberg, Academician

SUBMITTED: April 10, 1962

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BYKHOVSKIY, D.N.; PETROVA, I.K.; TUROVSKAYA, T.Z.

New variety of anomalous mixed crystals. Dokl. AN SSSR 161 no.1:
143-146 Mr '65. (MIRA 18:3)

1. Submitted September 16, 1964.

BYKHOVSKIY, B.B.

Mixed problem for one type of equations of particular derivatives.
Vest.Len.un. 11 no.19:55-65 '56. (MIRA 10:1)
(Differential equations, Partial)

BYKHOVSKIY, E.B.
BYKHOVSKIY, E.B.

Solution of the mixed problem for Maxwell's equations in the case
of an ideal conducting boundary [with summary in English]. Vest.
IGU 12 no.13:50-66 '57. (MIRA 10:11)
(Differential equations, Partial) (Vector analysis)
(Operators (Mathematics))

BYKHOVSKIY, E.B., Cand Phys Math Sci -- (diss)"Solution
of certain ~~elementary~~^{initial} boundary problems for ~~the~~ Maxwell's
equations ~~systems~~["] Len, 1958, 10 pp (Len Order of Lenin
State Univ im A.A. Zhdanov) 150 copies. Bibliography
at end of text (10 titles) (KL, 50-58, 119)

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16(1)

AUTHOR:

Bykhovskiy, E.B.

SOV/43-58-19-4/16

TITLE:

On the Local Solution of Cauchy's Problem for the System of Equations of Gas Dynamics by Means of the Difference Method for Smooth Initial Values (O reshenii v malom zadachi Koshi dlya sistemy uravneniy gazovoy dinamiki metodom konechnykh raznostey pri gladkikh nachal'nykh dannyykh)

PERIODICAL:

Vestnik Leningradskogo universiteta, Seriya matematiki, mekhaniki i astronomii, 1958, Nr 19(4), pp 39 - 44 (USSR)

ABSTRACT:

The equations of gas dynamics are replaced for smooth initial values by a matrix equation filling up a whole page. Then the problem is approximated by a difference scheme. If the initial values possess six and the pressure function five continuous derivatives, then the solution of the difference equation converges for decreasing step width to the sought solution. There are 4 references, 3 of which are Soviet, and 1 German.

SUBMITTED:

February 15, 1957

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25608

S/517/60/059/000 001/006
B112/B20216.460.0

AUTHORS: Bykhovskiy, E. B., Smirnov, N. V.

TITLE: Orthogonal decomposition of a space of vector functions quadratically summable over a given domain and of operators of the vector analysis

PERIODICALS: Akademiya nauk SSSR. Matematicheskiy institut. Trudy, v. 59, 1960, 5-36

TEXT: The authors study Hilbert spaces $L_2(\Omega)$ of vector functions $\vec{v}(x) = (v_1, v_2, v_3)$ whose domain of definition is a region Ω of the three-dimensional Euclidean space E_3 . The scalar product in $L_2(\cdot)$ is:

$$(u, v) = \int_{\Omega} \sum_k u_k v_k dx.$$

The authors consider a decomposition of $L_2(\Omega)$ into subspaces \mathring{G} , \mathring{U} and \mathring{J} orthogonal to each other which have been introduced by H. Weyl in a fundamental paper (The method of orthogonal projection in potential theory. Duke Math. J. 1937, 2, 37-52).
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B112/B202

Orthogonal decomposition of a ...

Journal, 7 (1940), 411 - 444). \bar{G} is the closure of the gradients of all finite smooth scalars, \bar{J} the closure of the curls of all finite smooth vectors of Ω , U the orthogonal complement $\bar{G} \oplus \bar{J}$. The authors mainly deal with conservation of differential properties in projection onto the subspaces \bar{G} , U and \bar{J} . In §I of chapter I the authors consider the space $L_2(E_3)$. Each finite smooth vector function $\vec{u}(x)$ of this space can be represented in the form:

$$\vec{u}(x) = \frac{1}{4\pi} \operatorname{curl} \int_{E_3} \frac{\operatorname{curl} \vec{u}(y)}{|x-y|} dy - \frac{1}{4\pi} \operatorname{grad} \int_{E_3} \frac{\operatorname{div} \vec{u}(y)}{|x-y|} dy \quad (1)$$

A decomposition $L_2 = \bar{G} \oplus \bar{J}$ corresponds to this possibility. It is demonstrated that in projecting onto \bar{G} and \bar{J} , the differential properties are conserved and \bar{G} and \bar{J} lie densely in \bar{G} and \bar{J} . §2 contains the fundamental results of H. Weyl applied to the space $L_2(E_3)$; they essentially read as follows: $\bar{G} = \bar{G} \oplus U$, $\bar{J} = \bar{J} \oplus U$ and $\Delta \vec{f} = 0$, $\operatorname{curl} \vec{f} = 0$, $\operatorname{div} \vec{f} = 0$ for $\vec{f} \in U$. In chapter II, Ω is assumed to be bounded by a surface homeomorphic to the sphere. An orthogonal decomposition of L_2 by means of a boundary value problem is obtained in §1; in §2 theorems are derived on the possibility of representing vectors as curls;

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in §3 the equivalence of the decomposition of §1 to Weyl's decomposition is demonstrated; in §4 the authors study the projection onto the Weyl subspaces. §1 of chapter III contains the studies of chapter II extended to limited, multiply connected spaces. The last section gives aspects of further studies for unbounded domains Ω . O. A. Ladyzhenskaya, S. L. Sobolev, S. G. Kreyn and V. M. Babich are mentioned. There are 1 figure and 26 references: 25 Soviet-bloc and 1 non-Soviet-bloc.

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Cont 3/3

BYKHOVSKIY, E.B.

Estimation of a vector through its rotor, and a mixed boundary value problem of electrodynamics in the case of mixed boundary conditions. Vest.IGU 16 no.19:161-164 '61. (MIRA 14:10)
(Boundary value problems) (Electrodynamics)

S/O20/62/146/004/001/015
B112/R186

AUTHOR: Bykhovskiy, E. B.

TITLE: Impermissible viscosity matrices for isothermal gas motion equations

PERIODICAL: Akademiya nauk SSSR. Doklady, v. 146, no. 4, 1962, 751 - 753

TEXT: The "evolutionarity" of the gasdynamical system $\partial \vec{u} / \partial t + \partial \vec{F}(\vec{u}) / \partial x = \varepsilon \partial (B(\vec{u}) \partial \vec{u} / \partial x) / \partial x$ (2) is investigated (cf. I. M. Gel'fand, UMN, 14, 2(86), 87 (1959)). A necessary condition is that the real parts of the eigenvalues of the viscosity matrix B are non-negative. The author shows that this condition is not sufficient. The insufficiency is proved

by the impermissible matrix $B = \begin{pmatrix} a_1 & \alpha \\ 0 & \bar{b}_1 \end{pmatrix}$, where a_1 and b_1 are positive

constants, and where $\alpha \neq 0$ is an arbitrary sufficiently small number.

Supporting evidence is given by the functions $u(\frac{x-t}{\varepsilon})$; $v(\frac{x-t}{\varepsilon})$ which

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Impermissible viscosity matrices...

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prove to be the solution to the system (2) and which tend at $\epsilon \rightarrow 0$ to the initial rarefaction discontinuity. Results for smear-out discontinuities obtained by G. Ya. Lyubarskiy (UMN, 17, 1(103), 183 (1962)), were used in the calculations.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet im. A. A. Zhdanova
(Leningrad State University imeni A. A. Zhdanov)

PRESENTED: April 26, 1962, by V. I. Smirnov, Academician

SUBMITTED: April 19, 1962

Card 2/2

BYKHOVSKIY, E.B. (Leningrad)

Small parameter method ("vanishing viscosity") for the solution of
a system of gas dynamics equations. Zhur.vych.mat.i mat.fiz. 2
no.6:1128-1131 N-D '62. (MIRA 15:11)
(Gas dynamics) (Differential equations)

BYKHOVSKIY, E.B.

Inadmissible viscosity matrices for equations of
isothermal gas motion. Dokl. AN SSSR 146 no.4:751-753
0 '62. (MIRA 15:11)

1. Leningradskiy gosudarstvennyy universitet im.
A.A. Zhdanova. Predstavleno akademikom V.I. Smirnovym.
(Gas flow)
(Differential equations)

BYKHOVSKIY, E.B.

Absence in C , L_p , and $W_p^1(1 < p < \infty)$ spaces of analogs to an energy inequality for the string equation with a bounded leading coefficient. Dokl. AN SSSR 163 no.5:1047-1049 Ag '65.

(MIRA 18:8)

L. Leningradskiy gosudarstvennyy universitet. Submitted January 23, 1965.

BYKHOVSKIY, E.B.

Absence in C , L_p , and W_p^1 ($1 \leq p < 2$) spaces of analogs of an energy inequality for the string equation with a bounded $a(x)$ leading coefficient. Vest. LGU 20 no.19:11-23 '65.

(MIRA 18:10)

ACC NR: AP6027729

(N)

SOURCE CODE: UR/0020/66/169/004/0789/0791

AUTHOR: Bykhovskiy, E. B.

ORG: Leningrad State University im. A. A. Zhdanov (Leningradskiy gosudarstvennyy universitet)

TITLE: On self-similar stable wave-propagation type solutions for some quasilinear equations including equations for the flow of water in an inclined channel

SOURCE: AN SSSR. Doklady, v. 169, no. 4, 1966, 789-791

TOPIC TAGS: wave propagation, hydrodynamics, viscous flow, nonlinear differential equation

ABSTRACT: Consider the quasi-linear equation

$$u_t + uu_x = \mu u_{xx} + F(u)$$

where F is a smooth function. For any $\mu < \mu_0$ this equation has a self-similar solution $u_\mu(\xi) = u_\mu(x - u_0 t)$ for which $\xi \in (c, d)$ outside the δ -vicinity of the discontinuity point $u(\xi)$, satisfying the inequality

$$|u(\xi) - u_\mu(\xi)| \leq \varepsilon.$$

This solution is also called stable in the interval $c < \xi < d$ for any $\varepsilon > 0$ and $\delta > 0$. For the flow of water in an inclined channel this equation takes the form

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UDC: 517.9:533.7

ACC NR: AP6027729

$$u_t + [p(v)]_x = F(u, v); \quad v_t - u_x = 0;$$

$$p(v) = \frac{g}{2} v^{-2}; \quad F(u, v) = a - \lambda u^m \left(v + \frac{2}{l}\right)^n \text{sign } u; \quad a, \lambda > 0; \quad m, n \geq 1.$$

A set of conditions is outlined for ω , n/m , and λ for which a self-similar solution can or can not exist. In the case where viscous dissipation is included in the channel the solution is a simple extension of the corresponding nondissipative case. This paper was presented by Academician V. I. Smirnov on 22 November 1965. Orig. art. has: 8 equations and 2 figures.

SUB CODE: 20/ SUBM DATE: 20Nov65/ ORIG REF: 002/ OTH REF: 002

Card 2/2

SHLEYFER, L., inzhener; BYKHOVSKIY, G., inzhener; GANKEVICH, F., inzhener.

Loading machinery in the new Stalin five-year plan. Mor.flet 7
no.7:5-8 JI '47. (MIRA 9:6)

(Loading and unloading)

BYKHOVSKIY, I. A.

"History of the Development of Diving in the USSR," Rech. transp., 12, No.4, 1952

BYKHOVSKIY, Israil' Adol'fovich; PUSTOSHNYI, A.F., otvetstvennyy redaktor;
MISHKEVICH G.I.. redaktor; FRUMKIN, P.S., tekhnicheskiiy redaktor.

[How the water-jet engine was developed] Kak sozdavalasia vodometnyi
dvizhitel'. Leningrad, Gos.soiuznoe iad-vo sudostroitel'.promyshl.
1956. 134 p. (MLRA 10:6)

(Water-jet)

~~AYCHOVSKIY, Izraeli, Adalifonich~~ ZOLOTUKHIN, N.S., otvetstvennyy redaktor;
MISHKOVICH, G.I., redaktor; SHISHKOVA, L.M., tekhnicheskiy redaktor

[Atomic submarines] Atomnye podvodnye lodki. Leningrad, Gos.
soiuznoe izd-vo sudostroit. promyshl., 1957. 76 p. (MIRA 10:10)
(Atomic submarines)

VAVILOV, Dimitriy Mikhaylovich, kapitan 1 ranga zapasa; OSADCHIY, Mikhail Dmitriyevich, kapitan 1 ranga zapasa; BYEHOVSKIY, Israil' Adol'fovich, kapitan 2 ranga zapasa; KAZANKOV, A.A., kapitan 1 ranga, red.; KONVALOVA, Ye.K., tekhn.red.

[Practical seamanship] Morskaya praktika. Pt.2.[Ship handling]
Upravlenie manevrami korablia. Moskva, Voen.isd-vo M-va obor.SSSR.
1958. 287 p. (MIRA 12:4)

(Navigation)

~~BYKHOVSKIY, Izrail' Adol'fovich; ZOLOTUKHIN, N.S., nauchnyy red.; VASIL'YEV, A.V., red.1zd-va; GURDZHIEVA, A.M., tekhn.red.~~

[Atomic warships of the NATO countries are weapons of imperialistic aggression; stenographic record of a lecture given in various establishments in Leningrad] Boevye atomnye korabli stran NATO - oruzhie imperialisticheskoi agreszii; stenogramma lektsii, pročitannoi na predpriiatiiakh Leningrada. Leningrad, O-vo po rasprostraneniu polit. i nauchn.snanii RSFSR, Leningr.otd-nie, 1959. 51 p.

(MIRA 12:12)

(Atomic ships)

BYKHOVSKIY, Izrail' Adol'fovich; BELLI, V.A., prof., kontr-admiral,
retsensent; ZALESSKIY, N.A., kand. tekhn. nauk, retsensent;
ASHIK, V.V., prof., red.; KAZAROV, Yu.S., red.; SHISHKOVA,
L.M., tekhn. red.

[Experts on ships: S.O.Burachek, A.A.Popov, I.F.Aleksandrovskii,
S.K.Dzheretskii] Korabel'nykh del mastera: S.O.Burachek, A.A.Popov,
I.F.Aleksandrovskii, S.K.Dzhevetskii. Pod red. V.V.Ashika. Leningrad,
Gos.soiuznoe izd-vo sudostroit.promyshl., 1961. 215 p.

(MIRA 14:12)

(Shipbuilding)

BYKHOVSKIY, Izrail' Adol'fovich. Prinsipali uchastnye: AL'KIMOVICH, A.V.,
inzh.; YEFIMOV, K.A.; KRASIN, A.K., prof., doktor tekhn. nauk,
retsenzent; ZNAMEROVSKIY, B.P., kand. tekhn. nauk, retsenzent; KU-
DINOV, N.N., inzh., retsenzent; MISHKEVICH, G.I., red.; SHISHKOVA,
L.M., tekhn. red.

[Atomic ships] Atomnye suda. Pod red. N.N.Kudinova. Leningrad, Gos.
soiuznoe izd-vo sudostroit. promysl., 1961. 310 p. (MIRA 14:9)
(Atomic ships)

BYKHOVSKIY, Izrail' Adol'fovich; YEFREMOV, K.P., kand. tekhn. nauk, retsenzent; LARKIN, N.N., kand. tekhn. nauk, retsenzent; YEGOROV, S.A., nauchn. red.; MISHKEVICH, G.I., red.; SHISHKOVA, L.M., tekhn. red.

[Atomic submarines] Atomnye podvodnye lodki. Izd.2., perer. i dop. Leningrad, Sudpromgiz, 1963. 230 p.
(MIRA 17:1)

(Atomic submarines)

IORISH, Yu.I.; ANTSYFEROV, M.S., kand. fiz.-mat. nauk, retsenzent;
ERANOVSKIY, M.A., kand. tekhn.nauk, red.; BRATANOVSKIY, V.A.,
red.; BYKHOVSKIY, I.I., inzh., red.; VASIL'YEVA, R.V., inzh.,
red.; KORITYSSKIY, Ya.I., kand. tekhn. nauk, red.; KUSHUL',
M.Ya., doktor tekhn. nauk, red.; PEVZNER, L.A., inzh., red.;
SHMELEV, V.A., kand. tekhn. nauk, red.; BYSTRITSKAYA, V.V.,
red.izd-va; UVAROVA, A.F., tekhn. red.

[Vibrometry; measurement of vibrations and shocks, general
theory, methods and devices] Vibrometriia; izmerenie vibra-
tsii i udarov. Obshchaia teoriia, metody i pribory. Izd.2.,
perer. i dop. Moskva, Mashgiz, 1963. 771 p. (MIRA 17:2)

BYKHOVSKIY, I.I. (Moskva); DOROKHOVA, A.D. (Moskva); ZARETSKIY, L.B.
(Moskva); LUKOMSKIY, S.I. (Moskva)

Some periodic movements and the structure of the phase space
of an impact-vibration system with a regularly recovered
force. Izv. AN SSSR. Mekh. i mashinostr. no. 2:161-165
Mr-Apr '64. (MIRA 17:5)

ACC NR: AP7002618

(A,N)

SOURCE CODE: UR/0413/66/000/023/013470134

INVENTOR: Inozemtsev, N. I.; Kitayev, Yu. V.; Bykhovskiy, Kh. V.; Pechatin, A. A.

ORG: none

TITLE: Piston reducer for an automatic aqualung. Class 65, No. 189323

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 23, 1966, 134

TOPIC TAGS: piston reducer, aqualung, diving technology, life support equipment, respirator, underwater clothing, survival kit

ABSTRACT: An Author Certificate has been issued for a piston reducer assembly for an automatic aqualung. Fig. 1 shows the assembly. To maintain secondary pressure in the

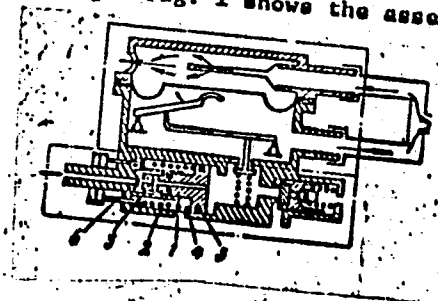


Fig. 1. Piston reducer assembly

- 1 - Differential piston;
- 2 and 3 - rubber gaskets;
- 4 - spring; 5 - seal;
- 5 - connecting pipe seat.

Card 1/2

UDC: 626.025.5

BYKHOVSKIY, L.

The flow of precast reinforced concrete at state farm construction projects is increasing. Sel'.stroj. no.11:3-5 N '62.

(MIRA 15:12)

1. Nachal'nik proizvodstvenno-tekhnicheskogo otdela zavoda zhelezobetonnykh izdeliy tresta Smolenskuovkhozstroy.
(Concrete plants)

BYKHOVSKIY, L. B., Eng.

"On the Interchangeability of Parts with Multiple Threads" p. 298-307 in book
Increasing the Quality and Efficiency of Machinery, Moscow, Mashgiz, 1957,
626pp.

BYKHOVSKIY, L.B. (Perm')

Characteristics of multiple threads and their interchangeability.
[Iss.] LONITOMASH 47:77-80 '58. (MIRA 11:10)
(Screw threads)

BYKHOVSKIY, L.B.

Correlation of errors in multiple threads. Standartizatsiia 27
no.12:3-9 D '63. (MIRA 17:4)

BYKHOVSKIY, L. B.

Bykhovskiy, L. B. (Perm'). Interchangeability and Special Features
of Multiple Threads

p. 77

Interchangeability, Accuracy and Measuring Methods in Machine Building, Moscow, Mashgiz, 1958, 251 pp. (Sbornik Nauchno-tekhn. obshch. mashinostroitel'noy promyshlennosti, Leningradskoye oblast' pravleniya, kn. 47).

This collection of articles deals with the topics discussed at the 3rd Leningrad Sci. and Engineering Conference on Interchangeability, accuracy and Inspection Methods in Machine-building and Instrument-making, held 18-22 Mar 1957.

BYKHOVSKIY, L.I., kand.tekhn,nauk.

Screw-type heat exchange apparatus. Teploenergetika 4 no.11:
92-94 N '57. (MIRA 10:10)
(Heat exchangers)

BYBOCHKIN, A.M.; BYKHOVSKIY, L.Z.; GURVICH, S.I.; CHETYRBOTSKAYA, I.I.

Tungsten deposits as a new source of tantalum. Razved. i okh.
nedr 29 no.7:10-12 JI '63. (MIRA 16:9)

1. Gosudarstvennyy geologicheskii komitet SSSR (for Bybochkin).
2. Geologo-geokhimicheskii trest (for Bykhovskiy, Gurvich, Chetyrbotskaya).

(Tungsten ores) (Tantalum)

BYBOCHKIN, A.M.; BYKHOVSKIY, L.Z.; GURVICH, S.I.; CHETYRNITSKAYA, I.I.

Bismuth in tungsten deposits. Razved. i okh. nedr 30 no.2:
10-15 F '64. (MIRA 17:8)

1. Gosudarstvennyy geologicheskiy komitet SSSR i Geolgo-
geokhimicheskiy trest.

ARKHANGEL'SKAYA, V.V.; ROZOV, B.S.; BYKHOVSKIY, L.Z.; CHETYRBOTSKAYA, I.I.

New types of scandium-bearing raw materials. Razved. i okh. nedr
29 no.6:9-14 Je '63. (MIRA '18:11)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut mineral'nogo syr'ya (for Arkhangel'skaya). 2. Geologo-geokhimicheskiy trest (for Rozov, Bykhovskiy). 3. Tsentral'nyy nauchno-issledovatel'skiy gornorazvedochnyy institut tsvetnykh, redkikh i blagorodnykh metallov, Moskva (for Chetyrbotskaya).

BYKHOVSKIY, M. A.

28640

Ryentgye Notyeraliya Raka Kozhn Myetodom Frak Tsonirovannogo Obluchyeniya,
Uchyen, Zapiski (Kiyevsk, Ryentgyeno - Radiol I Onkol. IN-T), 1, 1949
S. 138-48

SC: LETOPIS NO. 38

L 22455-66 EWT(d)/FSS-2

ACC NR: AP6005000 SOURCE CODE: UR/0106/66/000/001/0060/0066

AUTHOR: Bykhovskiy, M. A.

3/
B

ORG: none

TITLE: Analysis of noise rejection of summation codes used in request-for-repetition systems

6,44

SOURCE: Elektrosvyaz', no. 1, 1966, 60-66

TOPIC TAGS: noise rejection, communication system, request for repetition system

ABSTRACT: Simple approximate formulas for evaluating the probability of undetected error in a code combination as a function of the probability of incorrect reception of one code symbol are developed. The formulas are applicable to summation-type codes in which first m positions of an n -digit code combination carry information; the balance $k = n - m$ positions are used for checking, i. e., for transmitting a binary number equal to the number of ones transmitted by the first m information positions. The summation code is compared to the constant-weight code with an approximately equal number of combinations. This comparison reveals that, in ARQ systems, the constant-weight code will have a slightly better noise rejection. However, thanks to much simpler encoding-decoding procedures in the summation codes, they can be preferred for practical purposes. Orig. art. has: 2 figures and 30 formulas.

SUB CODE: 17 / SUBM DATE: 03Mar65 / ORIG REF: 004 / OTH REF: 001

Cord 1/1

UDC: 621.394.14

BYKHOVSKIY, M. L.

Bykhovskii, M. L. The new Bush differential analyzer.
Bull. Acad. Sci. USSR, Cl. Sci. Techn. [Izvestia Akad.
Sov. SSSR] 1946, 1177-1198 (1946). (Russian)
C. Bush and Caldwell, J. Franklin Inst. 240, 255-326
(1915); ibid. Rev. 7, 339.

Source: *World Reviews*,

Vol. 8, No. 3

SMW

BYKHOVSKIY, M. L.

"Precision of Mechanisms in Which the Position of Links Is Expressed
With Differential Equations." Sub 26 Nov 47. Inst of Machine Science, Acad
Sci USSR

Dissertations presented for degrees in science and engineering in Moscow
in 1947

SO: Sum No. 457, 18 Apr 55

BYKHOVSKY, M. L.

USSR/Errors
Mathematics

May 1947

"On a Method of Determining Velocity and Acceleration Errors of Plane Mechanisms," M. L. Bykhovsky,
8 pp

"Izv Ak Nauk Tekh Nauk" No 5

Mathematical discussion, with formulas and mechanical diagrams of subject mechanisms.

9T107

BYKHOVSKIY, M. L.

00007

Bykhovskii, M. L. On a method for determining the errors of velocity and acceleration of plane mechanisms. Bull. Acad. Sci. URSS. Cl. Sci. Tech. [Izvestia Akad. Nauk SSSR] 1947, 503-510 (1947). (Russian)

The errors in any mechanism, due to unavoidable deviations from design in manufacture, are expressible approximately in terms of the design parameters and the first order deviations. The author describes a graphical method for obtaining errors in speed ratios and accelerations. He employs the expedient of treating deviations as deformations of the members which, in turn, produce displacements of the various members of the mechanism. Therefore, for each position of the given mechanism, a new mechanism is constructed whose motions correspond to errors produced by a deformation of the members of the given mechanism. By combining the separate errors, an estimate of the total error is obtained. M. Goldberg (Washington, D. C.).

Source: Mathematical Reviews, 1948, Vol 9, No. 2

871

Bykovskiy, M. L.

Bykovskii, M. L. The cinem. integrator of Massachusetts
Institute. Bull. Acad. Sci. URSS. Ci. Sci. Tech. [Izvestia
Akad. Nauk SSSR] 1947, 645-654 (1947). (Russian)
The instrument was described by Hazen and Brown [J.
Franklin Inst. 230, 1-31, 183-205 (1940); these Rev. 2,
62.]

Source: Mathematical Reviews, 1948, Vol 9, No. 2

ДЛЯ ПРОВЕРКИ

Byhovskii, M. L. The accuracy of mechanisms controlled by differential equations. *Izvestiya Akad. Nauk SSSR. Otd. Tekh. Nauk* 1947 1455-1512 (1947 (Russian))

For the case-and-wheel integrator 31 sources of error (including 11 of instance, lubrication film thickness) exist; (including 2 of instance, block 47 of them are listed). The first variation (called "the error" by the author) of the output integral is laboriously expressed in terms of the variations of the listed design parameters and the input variables. Of the original 73 variations only twelve turn out to be relevant, and enter into nine integrals of the form $I = \int_{x_0}^{x_1} f(x, y) dx$, where x is the variable of integration, and y is a random function whose mean value $\bar{y} = \eta$, and dispersion Dy , are constant within each of a set of intervals L_i of the same length Δx .

If the correlation coefficient between the random variables $\eta(x_i)$ and $\eta(x_j)$ is $r(x_i, x_j)$, then the author claims that

$$I = \int_{x_0}^{x_1} \eta dx + D_I^2 = \int_{x_0}^{x_1} \int_{x_0}^{x_1} r(x, y) u(x) u(y) D_1(x) D_1(y) dx dy,$$

For the case $r(x, y) = \exp(-k|x-y|/|y-x_0|)$, and constant D_1 , the author gets $D_I^2 = 2D_1^2 \int_{x_0}^{x_1} \int_{x_0}^{x_1} k / (v-w)^2 dx dy$, and regards D_I^2 as negligible, whence the claim that integration suppresses the random error. The application of this theorem to the variation of the output integral results in a definitive formula for the error of the integrator and specific suggestions for its reduction (say, elimination of deadlocks).

Bold group:izations follow a description of the Bush-type analyzer. It culminates in a statistical theorem for systems of differential equations: for a system of the type $\dot{\phi}_i = f_i(x, y, \phi_1, \dots, \phi_n) = 0$, involving a number of given quantities ϕ_i , the mean value of each ϕ_i neglecting second order terms is equal to the integral of the right-hand side of the system, with the second order terms neglected by the mean values. In the case of a system $Dy = \sum_{i=1}^n \phi_i D_i$, where the sub-variables ϕ_i are independent, the mean value of the output integral is $\int_{x_0}^{x_1} \eta dx + D_I^2$, where the mean value of η is the mean value of the ϕ_i 's, and D_I^2 is the mean value of the ϕ_i 's squared. The author's claim that the relations hold rigorously. The same claim that D_I^2 is negligible is made. *A. P. Wundtlicher*

Source: Mathematical Reviews,

Vol 9 no. 9

Bykhovskiy, M. L.

Bykhovskii, M. L. The automatic calculating-analytical machine of Harvard University. Izvestiya Akad. Nauk SSSR. Otd. Tehn. Nauk 1947, 1561-1575 (1947). (Russian)

An account based on the article by Aiken and Hopper, Elec. Engrg. 63, 384-391, 449-454, 522-528 (1946); these Rev. 8, 52.

Source: Mathematical Reviews,

Vol 9 No. 7

USSR / Mathematics - Calculators
Mathematics - Equations, Differential

Nov 1947

"The Precision of Mechanisms in Which the Position of the Links is Described by Differential Equations,"
M. L. Bykhovskiy, 28 pp

PAS2745

"Izv Akad Nauk SSSR, Otd Tekh Nauk" No 11

Gives a mechanical determination of the precision of work of machines which have already been constructed and makes recommendations for increasing this precision (for example, exclusion of systematic errors by a correcting equation). Allows

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USSR / Mathematics - Calculators (Contd) Nov 1947

designer to represent the permissible variation in a new machine in a more rational form. Submitted by Academician N. G. Bruyevich.

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BYKHOVSKIY, M. L.

BYBOKOV SAIT, M. I.
Bybovukh, M. I. An electronic calculating-analytical machine
(the ENIAC). Izvestiya Akad. Nauk SSSR. Otd.
Tehn. Nauk 1948, 1329-1356 (1948). (Russian)

Source: Mathematical Reviews,

Vol

No.

JP [Signature]

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