KRAPIVIN, M.G.; BELOV, V.T.

Testing the cutter bar on a drum-type actuator of a cutter-loader for stone drifting. Trudy NPI 158:3-14 '64.
(MIRA 18:11)

L 46840-66 EWT(l)/EWT(m)/EWP(t)/ETI IJP(c) JD/CD/JH

ACC NR: AT6024968 (N) SOURCE CODE: UR/0000/65/000/000/0126/0128

56
B+1

AUTHOR: Bogoyavlenskiy, A. F.; Belov, V. T.

ORG: Kazan Aviation Institute (Kazanskiy aviatsionnyy institut)

TITLE: Testing of filled anodic oxide films on aluminum with cathodic current in a nitric acid solution

SOURCE: AN SSSR. Otdeleniye obshchey i tekhnicheskoy khimii. Zashchitnyye metallicheskiye i oksidnyye pokrytiya, korroziya metallov i issledovaniya v oblasti elektrokhimii (Protective metallic and oxide coatings, corrosion of metals, and studies in electrochemistry). Moscow, Nauka, 1965, 126-128

TOPIC TAGS: anodic oxidation, aluminum oxide, dielectric breakdown

ABSTRACT: Cathodic current was used to evaluate the comparative stability of oxide films on aluminum, which were formed anodically in sulfuric acid solution and filled with solutions of sodium phosphates, sulfate, dichromate, and chromate with an anion concentration of 0.1 mole/l, and also with distilled water. The solution temperature was found to be a major factor in the filling of the aluminum films in dichromate-chromate and sulfate solutions, but not in phosphate solution. The filling effect in water surpasses that in sulfate solution, but is less pronounced than in dichromate-chromate solution. Based on testing with cathodic current in a 2% HNO_3 solution, the comparative stability of the anodic oxide films filled at 50-95° in aqueous solutions

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L 46840-66

ACC NR: AT6024968

of inorganic salts in the range of pH 4.5-5.3 can be expressed by the series (AF = anodic film)

$$AF_{Na_2Cr_2O_7/Na_2CrO_4} > AF_{H_2O} > AF_{Na_2SO_4} > AF_{NaH_2PO_4}.$$

The stability of films filled in phosphate solution is comparable to that of the other filled films only at low filling temperatures. Orig. art. has: 2 figures.

SUB CODE: 11,07/ SUBM DATE: 06Dec63/ ORIG REF: 004/ OTH REF: 001

Card 2/2 blg

L 06339-67 EWT(m)/EWP(t)/ETI IJP(c) JH/JD/JG
ACC NR: AP6030319 SOURCE CODE: UR/0153/66/009/003/0391/0395

AUTHOR: Belov, V. T.; Bogoyavlenskiy, A. F.

ORG: Chemistry Dopartment, Kazan Aviation Institute (Kafedra khimii, Kazanskiy aviatsionnyy institut)

TITLE: Effect of pH of the filler solution on the sorption of chromate ions by an anodic oxide film on aluminum

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 9, no. 3, 1966, 391-395

TOPIC TAGS: sorption, anodic oxidation, chromate, aluminum oxide, ACID BASE EQUILIBRIUM

ABSTRACT: The sorption of chromate ions by an anodic oxide film on AD-1 aluminum was studied by filling the film in bichromate solutions at various pH values and using the Cr^{51} radioisotope. It is shown that in the pH range corresponding to the minimum dissolution of the film, the sorption of chromate ions decreases with rising pH, and there is a simultaneous rise in the weight increase of the film. Possible causes of this phenomenon are examined. It is postulated that the decrease in the sorption of anions by the film may be due to the increased swelling of the film material as the pH rises, to a decrease in the amount of hydroxyl ions capable of undergoing ion exchange on the surface of the film, and to an increase in the amount of CrO_4^{2-} ions in the filler solution. Orig. art. has: 3 figures and 3 formulas.

SUB CODE: 07/ SUBM DATE: 14Apr64/ ORIG REF: 016/ OTH REF: 003

Card 1/1 UDC: 620.197+541.183.24+539.163

L 01302-67 EWT(1)/EWT(m)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6002205 (N) SORCE CODE: UR/0153/65/008/005/0753/0757

AUTHOR: Belov, V. T.; Bogoyavlenskiy, A. F.; Kozyrev, Ye. M.; Khristoforov, V. A.

ORG: Kazan' Aviation Institute, Department of Chemistry (Kazanskiy aviatsionnyy institut, Kafedra khimii)

TITLE: Investigation of the sorption properties of anodic oxide film on aluminum. VI. Electron microscopic study of anodic oxide films on aluminum after filling

SOURCE: IVUZ. Khimiya i khimicheskaya tekhnologiya, v. 8, no. 5, 1965, 753-757

TOPIC TAGS: anodic oxidation, aluminum, electron microscopy

ABSTRACT: Samples of aluminum AD-1, 18 cm^2 in surface, were degreased by acetone and subjected to anodic oxidation for 20 minutes in 20% H_2SO_4 at 20C at a current density of 1 amp/dm^2. After washing in distilled H_2O and drying in a desiccator over H_2SO_4, the oxide film weighed 0.155 g/dm^2, had a thickness of 5-6μ, a porosity of 15-18%, and contained 15-16% by weight of sulfate ions. Filling of oxide films was made in distilled H_2O and in 0.1 M solution of sodium phosphate or chromate at various pH. The electron microscope study was made from lac and, in some cases, titanium replicas. The reaction of the oxide film with H_2O at 95C caused a noticeable swelling and an intense hydration which narrowed the pores and changed the observable relief of the film surface. The

Card 1/2 UDC: 620.197 : 537.533.35

L 01302-67

ACC NR: AP6002205

chemical-sorption reaction of the film substances with anions of the inorganic solution-filler resulted in the formation of dense chemical-sorption layers, decreasing noticeably the swelling affected by H_2O. In addition, the phosphate and chromate solution-fillers, which reacted with film substances with a low dissolving effect (pH 4.5-6.5), somewhat smoothed the frontal surface of the film in the most protruding places. The exposure of film to air at 110C did not change its surface, but exposure of film to 330C brought about the deformation of the film surface. Evidently the decreases in weight, observed in both cases, were caused in the first case by the liberation of adsorption water from pores, whereas in the second case it was caused by the dehydration of oxide and removal of structural water. The data obtained substantiated the theory, advanced previously, on the presence of dissolving, hydration, and sorption of anions during filling of films in aqueous solutions of inorganic salts. It was noticed that, during filling of films in solutions of Na phosphate, hydration was smaller than during filling in bichromate - chromate solutions. The paper was presented at the Fourth All-Union Conference on Electron Microscopy (IV Vsesoyuznoye soveshchaniye po electronnoy mikroskopii) held at Sumy, 12-14 Mar 1963. Orig. art. has: 2 fig. and 1 table.

SUB CODE: 11,20/SUBM DATE: 09Sep63/ ORIG REF: 004/ OTH REF: 002

Card 2/2 hdh

ACC NR: AP7003141 SOURCE CODE: UR/0080/66/039/012/2705/2711

AUTHOR: Bogoyavlenskiy, A. F.; Belov, V. T.

ORG: none

TITLE: Filling of anodic oxide film on aluminum in aqueous solutions of certain inorganic salts and its comparative effectiveness

SOURCE: Zhurnal prikladnoy khimii, v. 39, no. 12, 1966, 2705-2711

TOPIC TAGS: aluminum, anodic oxidation, surface film

ABSTRACT: Continuing their study of the mechanism of filling of anodic oxide films on aluminum in solutions of inorganic salts, the authors found that during such filling the anions have different capacities for penetrating the film and for desorption. It is shown that sulfate ions which have penetrated the film in the course of its formation pass into the filler solution in negligible amounts and do not determine the sorption of the anion of the solution. It is concluded that no single mechanism of filling of the anodic oxide film on aluminum can be proposed; in each individual case, the mechanism is determined by the nature of the filler solution, condition of the surface, and conditions of the filling. Filling of the film in solutions of phosphate salts contributes relatively little to an increase in its protective properties, but in solutions of sulfate and chromate salts improves the protective properties of the film. Authors express their thanks to Ye. M. Kozyrev and I. A. Vagina for their par-

Card 1/2 UDC: 620.197:539.163:620.199

ACC NR: AP7003141

ticipation in the experiments. Orig. art. has: 6 figures and 2 tables.

SUB CODE: 07/ SUBM DATE: 15Dec64/ ORIG REF: 012

Card 2/2

1. TURUNOVSKIY, V. A., BELOV, V. V.

2. USSR (600)

4. Sudogoda District-Coal

7. Report on the geological and prospecting work of the Ivanov petroleum exploration group for 1942.
[Abstract.] Izv. Glav. upr. geol. fon. No. 2, 1947

9. Monthly Lists of Russian Accessions, Library of Congress, March 1953, Unclassified.

1. BELOV, V. V.
2. USSR (600)
4. Kyzyl Tash - Emery
7. Deposits of emery in the vicinity of the Irtyash group. [Abstract.] Izv. Glav. upr. geol. fon. no.3. 1947

9. Monthly List of Russian Accessions, Library of Congress, March 1953, Uncl.

GOPANENKO, V.M.; GOLOSHCHAPOV, I.A.; STARCHENKOV, V.M.; KOZHUKHOVSKIY, A.; BELOV, V.V., veterin.vrach

Intraperitonial injection of the solution of drug mixtures into calves during dyspepsia. Veterinariia 41 no.3:56-59 Mr '64.

1. Glavnyy veterinarnyy vrach sovkhoza "Vpered", Moskovskaya obl. (for Gopanenko). 2. Glavnyy veterinarnyy vrach Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Goloshchapov). 3. Zaveduyushchiy veterinarnoy laboratoriyey Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Starchenkov). 4. Glavnyy zootekhnik Yefremovskogo proizvodstvennogo upravleniya Tul'skoy oblasti (for Kozhukhovskiy). 5. Sovkhoz "Tucha", Minskaya oblast' (for Belov).

18(5,7) SOV/135-59-9-3/23

AUTHORS: Shorshorov, M. Kh., Zemzin, V. N., Candidates of Technical Sciences; Belov, V. V., and Smirnova, I. D., Engineers

TITLE: Research on Weldability of Heat Resistant Steels Containing 12% Chromium

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 9, pp 6-10 (USSR)

ABSTRACT: The authors state that the use of higher working temperatures (565-580°C) with present day steam turbines need heat resistant steels for the more heated parts. Therefore research was done on the weldability of heat resistant steels containing about 12% chromium. Chromium steels without additional alloys (Type 2Kh13, 1Kh13, 08Kh12) and reinforced steels (Type 15Kh11MF, 15Kh11VF, 15Kh11MFB, 15KhVMF, 15Kh12VMF with Ti, Nb and B, 25Kh11M3F) were investigated. The influence of the welding on structure and qualities of the zone near the weld was investigated by the method IMET-1 /Ref 4/ under conditions of arc welding with maximum temperatures. T_{max}= 1370 - 1400°C, and cooling speed W_{0kh1} = 0.1 - 600°C/sec

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Research on Weldability of Heat Resistant Steels Containing 12% Chromium

in an interval of 750 - 650°C. The change of the mechanic qualities of chromium steels under the influence of the thermal cycle of welding (Table 2) shows, that in steels without alloying addition the carbon content has a considerable influence. Fig 1 shows the change of the mechanical qualities in the zone near the weld of steels with 12% chromium dependent on the cooling speed in intervals of 750 - 650°C. Research has shown that in steels without reinforcing alloys a lower cooling speed leads to a considerable increase of granulation and a decrease of plasticity. Chromium steels with 12% Cr and with reinforced and alloying addition are less sensitive to a change of the thermal cycle parameter when welding, and they have less tendency to an increased granulation in the zone near the weld. Several results given by E. A. Kheyn, Engineer, were used in this study. There are 8 photographs, 1 drawing, 4 graphs, 4 tables and 6 references, 5 of which are Soviet and 1 German.

SOV/135-59-9-3/23

Research on Weldability of Heat Resistant Steels Containing 12% Chromium

ASSOCIATIONS: Institut metallurgii imeni A. A. Baykova AN SSSR (Institute of Metallurgy imeni A. A. Baykov) (Shorshorov, M. Kh. and Belov, V. V.); Tsentral'nyy nauchno-issledovatel'skiy kotloturbinnyy institut imeni I. I. Polzunova (Central Scientific Research Institute for Boilers and Turbines imeni I. I. Polzunov) (Zemzin, V. N. and Smirnova, I. D.)

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SOV/135-59-11-5/26

18(5,7)

AUTHORS: Shorshorov, M.Kh., Candidate of Technical Sciences, Smirnov, B.A., and Belov, V.V., Engineers

TITLE: Peculiarities of Austenite Transformation During Fusion Welding

PERIODICAL: Svarochnoye proizvodstvo, 1959, Nr 11, pp 12-15 (USSR)

ABSTRACT: The weldability of perlite steel is assessed by the alteration of its structure in the zone of welding. The main factor affecting the strength of welds is the content of martensite which should not exceed 20-30%. Depending on the rigidity of the structure, the contents of martensite can be raised up to 50% provided that the work piece will be tempered after welding. In research of austenite transformation during the welding process, the method IMET-1 and dilatation tests were applied; as test-pieces, low-alloy steels 23G, 20KhGS, 35KhGSA, 40Kh and 18Kh2VF were used (Table 1) after the heat-treatment and high tempering at 550-600°C. The process of austenite transformation and growth of grains in steels 23G and 18Kh2VF is shown in Fig 1. The influence of heating speed on the hardness of martensite is illustrated in Table 3. Analysis of

Peculiarities of Austenite Transformation During Fusion Welding

Graphs 3 and 4 discloses the process of austenitic transformation during the cooling. The speed of heating exerts a substantial influence on the processes of austenite homogenization. In steels with a small content of carbide-forming elements, a high temperature in the fusion zone furthers the growth of grains and increases the austenite stability. In steels with carbide-forming elements, a quick heating decreases the homogeneity and stability of austenite. Selection of cooling speed should be performed on the basis of the methods used by IMET-1 or MVTU which take into consideration the peculiarities of austenite transformation during fusion welding. There are 7 graphs, 6 tables and 6 references, 4 of which are Soviet, 1 English and 1 German.

ASSOCIATION: Institut metallurgii imeni A.A. Baykova AN SSSR (Institute of Metallurgy imeni A.A. Baykov, AS USSR)

VAYNER, I.I., inzh.; BELOV, V.V., inzh.

Specialized machine for knurling ridges. Khim. mash. no.4:38-39 Jl-Ag '61. (MIRA 14:8)
(Chemical engineering--Equipment and supplies)

SHORSHOROV, M.Kh, kand.tekhn.nauk; SOKOLOV, Yu.V., inzh.; RUSSIYAN, A.V., kand.tekhn.nauk; MATSNEV, E.P., inzh.; KURKINA, N.I.; Prinimali uchastiye: BELOV, V.V., inzh.; SEDYKH, V.S., kand.tekhn.nauk; GLUKHOV, Yu.P., inzh.

Effect of the composition and structure of chromium-nickel steels and alloys on the formation of hot cracks in the weld zone. Svar.proizv. no.4:12-17 Ap '62. (MIRA 15:3)

1. Institut metallurgii im. Baykova (for Shorshorov, Sokolov, Belov, Sedykh). 2. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii im. Bardina (for Russiyan, Matsnev).
(Chromium-nickel alloys--Metallography)
(Welding--Defects)

BELOV, V.V.; ZOLOYEV, K.K.; SPASSKIY, A.A.

Localization of mineralization in asbestos zones of the Urals and large-scale prospecting mapping of ultrabasite complexes. Zakonom. razm. polezn. iskop. 6:206-221 '62. (MIRA 16:6)

1. Ural'skoye geologicheskoye upravleniye.
(Ural Mountains—Asbestos)
(Ural Mountains—Ultrabasite)
(Ural Mountains—Geology—Maps)

S/135/62/000/011/005/006
A006/A101

AUTHOR: Belov, V. V., Engineer

TITLE: The Second Conference on hot cracks in weld joints, castings and ingots

PERIODICAL: Svarochnoye proizvodstvo, no. 11, 1962, 40

TEXT: The Second Conference on hot cracks was held in Moscow on May 22 - 23, 1962. During the Conference the participants discussed reports delivered on the origin of hot cracks, the determination of technical strength, ways to prevent such cracks, and further trends in the research. The Conference was opened by N. N. Rykalin, Corresponding Member of AS USSR; M. Kh. Shorshorov, Candidate of Technical Sciences, delivered a detailed report on the main problems treated in the papers submitted. The discussion of the materials published was attended by: Candidate of Technical Sciences I. I. Novikov (MISiS), Candidate of Technical Sciences V. A. Yefimov (Institut ispol'zovaniya gaza AN USSR - Institute of Gas Utilization at the UkrSSR Academy of Sciences); Candidate of Technical Sciences I. B. Kumanin (MISiS); Candidate of Technical Sciences S. V. Lashko; Can-

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S/135/62/000/011/005/006
A006/A101

The Second Conference on...

didate of Technical Sciences V. S. Zolotorevskiy (MISiS); Engineer I. M. Zhdanov (Kiyev Polytechnic Institute); Candidate of Technical Sciences V. S. Ignat'yeva (MISI imeni Kuybyshev); Candidate of Technical Sciences N. A. Trubitsyn (TsNIITMASh); Doctor of Technical Sciences N. N. Prokhorov (MVTU imeni Bauman); Engineer Ye. A. Bekerman (Bezhitskiy staleliteynyy zavod, Bezhitsk Steelmelting Plant); Engineer V. M. Zabolotskiy; Doctor of Technical Sciences B. A. Mochvan (IES imeni Ye. O. Paton); Candidate of Technical Sciences N. F. Lashko; Doctor of Technical Sciences G. L. Petrov (Leningrad Polytechnic Institute imeni M. I. Kalinin); Doctor of Technical Sciences A. A. Alov (MATI); Candidate of Technical Sciences M. Kh. Shorshorov (Institute of Metallurgy imeni A. A. Baykov); Engineer M. F. Sidorenko (TsNIITMASh); Candidate of Technical Sciences A. V. Russiyan (TsNIIChM imeni I. P. Bardina); Engineer V. V. Tikhonova; Engineer Yu. V. Subbotin (MVTU imeni Bauman); Engineer Ye. I. Rytvin; Candidate of Technical Sciences G. A. Korol'kov (Vsesoyuznyy zaochnyy politekhnicheskiy institut - All Union Polytechnic Correspondence Institute); Engineer B. F. Yakushin (MVTU imeni Bauman); Engineer A. A. Kiselev (Volgograd "Krasnyy Oktyabr'" Plant); Candidate of Technical Sciences V. S. Gavrilyuk (MVTU imeni Bauman); Doctor of Technical Sciences A. A. Yerokhin (Institute of Metallurgy

Card 2/3

The Second Conference on...

imeni A. A. Baykov); Candidate of Technical Sciences Ye. D. Lonskiy (All-Union Correspondence Polytechnic Institute). The board of editors worked out a resolution that was unanimously approved by the Conference.

Card 3/3

VAYNER, I.M., inzh.; BELOV, V.V., inzh.

New methods of the le[illegible] plating of chemical apparatus. Khim. mashinostr. no.3:35-36 My-Je '63. (MIRA 16:11)

BELOV, V. V. (Engineer)

"Influence of composition of highly durable steels on delayed destruction (formation of cold cracks) in welding".

Report presented at the regular conference of the Moscow city administration NTO Mashprom, April 1963.
(Reported in Avtomaticheskaya Svarka, No. 8, August 1963, pp 93-95, M. M. Popekhin)

JPRS24,651 - 19 May 64

DEMIDOVA, M.I., student; BELOV, V.V., student; TSFAS, B.S., dotsent, nauchnyy rukovoditel'raboty

Increasing fatigue resistance of the crankshafts of mine hoists. Sbor.dokl.Stud.nauch.ob-va Fak.mekh.sel'.Kuib.sel'khoz.inst. no. 1:134-139 '62. (MIRA 17:5)

1. Kuybyshevskiy sel'skokhozyaystvennyy institut.

L 56461-65 EWT(d)/EPA(s)-2/EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(h)/EFW(z)/EWP(b)/EWP(l)/EWA(c) Pf-4 MJW/JD/HM/EW/EM

ACCESSION NR: AP5018627 UR/0135/64/000/012/0001/0004

AUTHOR: Shorshorov, M. Kh. (Doctor of technical sciences); Belov, V. V. (Engineer)

TITLE: Effect of technological factors on failure of the heat-affected zone in hardened steels

SOURCE: Svarochnoye proizvodstvo, no. 12, 1964, 1-4

TOPIC TAGS: metal fatigue strength, metal test, metal deformation, steel, metallurgic testing machine

Abstract: The IMET-4 machine was developed in 1959-1960 at the Institute of Metallurgy imeni A. A. Baykov for the comparative quantitative fatigue strength testing of metals. The machine permits the investigation of specimens in the post-treated state according to various temperature cycles with consideration of the effect of deformation, for example, after quenching, thermal cycle of welding (for the heat-affected zone), thermomechanical treatment, etc. Each of these methods of treatment is simulated in the machine on flat notched specimens by electric heating and stressing them at the required temperature in the cooling process with subsequent holding at a constant tensile stress until failure. By changing the load from specimen to specimen a strength-time relationship curve can be constructed

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in semi-logarhythmic coordinates and on it the minimum failure stress and time to failure at this stress can be determined.

In the tests under study the thermal cycles of the specimens differed from actual thermal cycles of welding steel by lower rates of heating and longer durations of the metal above the Ac_3 temperature which ensured, during a relatively low T_{max}, the size of austenite grains approximately the same size as grains in the heat-affected zone close to the line of fusion.

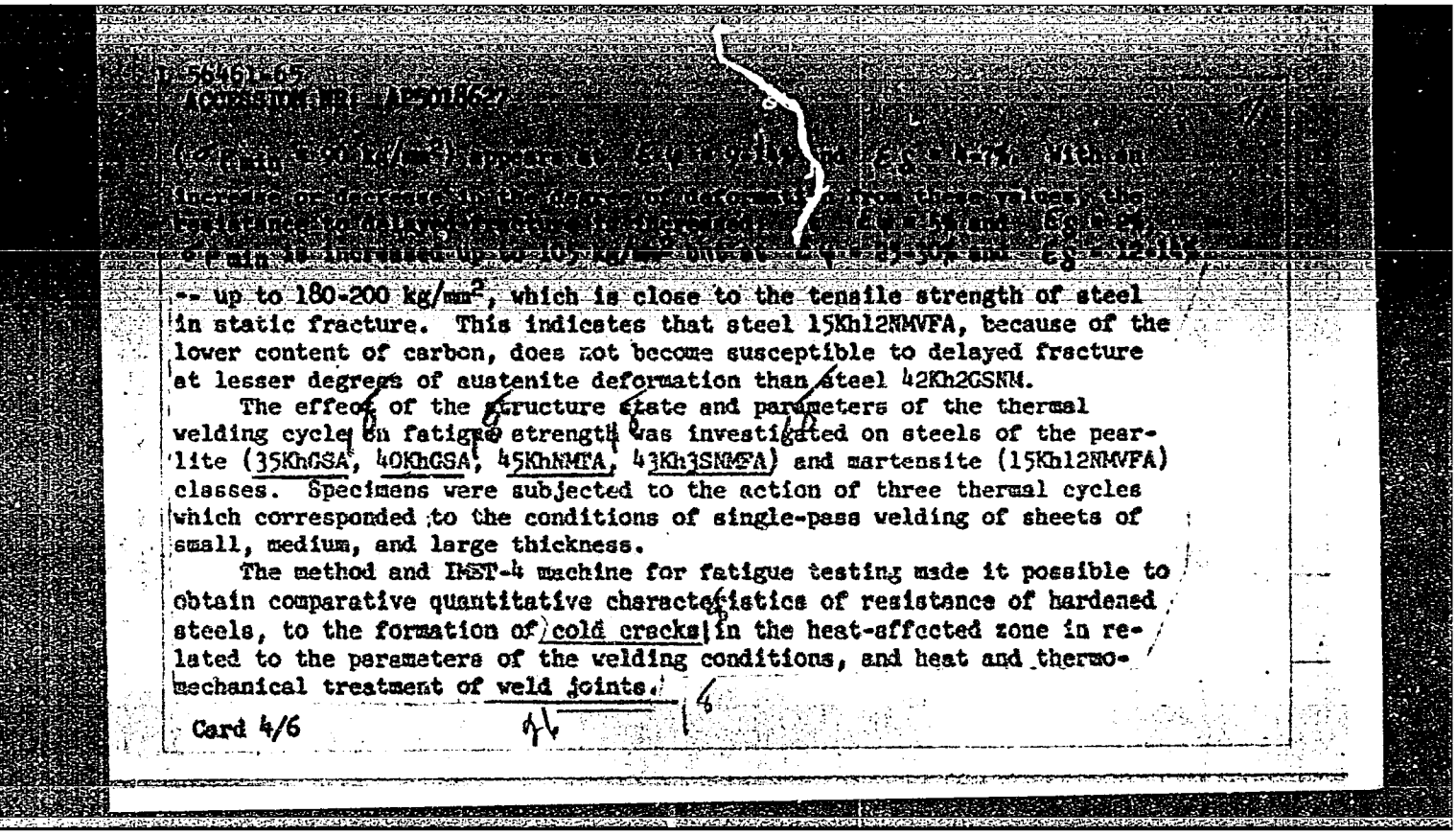
The effect of the degree of deformation of austenite on the fatigue strength was investigated in steels EI-962A (15Kh12NMVFA) and 42Kh2GSNM. In the cooling process the specimens were stressed in the austenitic state in the 550-400°C range to 0, 15, 30, and 50 kg/mm^2; later, in the process of martensitic transformation in the 270-140 or 220-110°C ranges, as well as at 20°C, up to the full assigned stress. The cooling rate of the specimens was greater than the critical rate of quenching. Tests at high degrees of deformation practically coincided with the conditions of ausforming of hardened steels, but at low degrees -- to conditions of welding and ordinary quenching.

Measurement of the deformation kinetics of specimens in the process of stressing and testing indicated that in the first stressing period the deformation amounts to 70-90% of the total deformation. After complete cooling there is no noticeable macroscopic deformation in the under-load holding

process at room temperature. Most of the specimens failed during testing in the course of 10-12 hours after stressing; several specimens failed within 1-2 days. The fracture surface of the specimens has a grainy crystal structure, typical for brittle fracture.

Steel 42Kh2GSNM has the lowest resistance to delayed fracture at the deformation degree of austenite ε_ψ = 12-14%, ε_δ = 5-10%: $\sigma_{\rho\,min}$ = = 49-50 kg/mm^2, t_ρ = 2 hours. From the lowest degree of deformation (ε_ψ = 2-8% and σ_δ = 2%) resistance to delayed fracture is increased insignificantly, $\sigma_{\rho min}$ is increased to ~57 kg/mm^2. This value is close to conditions at which austenite is deformed in the heat-affected zone during welding. With an increase in the degree of deformation (ε_ψ = 50% and ε_δ = 28%) the fatigue strength is sharply increased, the value of $\sigma_{\rho\,min}$ is increased to 107 kg/mm^2, and t_ρ becomes more than 24 hours. Consequently, even at this degree of deformation, ausforming increases the fatigue strength of steel by a factor of 2.

In steel 15Kh12NMVFA the relationship of $\sigma_{\rho min}$ to degree of austenite deformation has the same character. The lowest fatigue strength



-- up to 180-200 kg/mm^2, which is close to the tensile strength of steel in static fracture. This indicates that steel 15Kh12NMVFA, because of the lower content of carbon, does not become susceptible to delayed fracture at lesser degrees of austenite deformation than steel 42Kh2GSNM.

The effect of the structure state and parameters of the thermal welding cycle on fatigue strength was investigated on steels of the pearlite (35KhGSA, 40KhGSA, 45KhNMFA, 43Kh3SNMFA) and martensite (15Kh12NMVFA) classes. Specimens were subjected to the action of three thermal cycles which corresponded to the conditions of single-pass welding of sheets of small, medium, and large thickness.

The method and IMST-4 machine for fatigue testing made it possible to obtain comparative quantitative characteristics of resistance of hardened steels, to the formation of cold cracks in the heat-affected zone in related to the parameters of the welding conditions, and heat and thermomechanical treatment of weld joints.

Card 4/6

L 56461-65
ACCESSION NR: AP5018627

In steels with the high austenite stability and 0.3-0.5% carbon content, practically at any conditions of single-pass arc welding and surfacing, cracks can be prevented only by the self-tempering of the martensite during the welding process by means of slowing cooling rate or corresponding preheating rate.

In steels with the same carbon content, but with average or low austenite stability, during the welding of which the structural condition of the heat-affected zone is easily controlled, the absence of cracks for a decrease in the cooling rate is explained by the appearance of bainite and pearlite structures. When carbon content is low, cracks can be prevented in marsensitic steels not only by welding under variable, but also quite rigid conditions.

Delayed fracture and the formation of cold cracks occur most intensively at temperatures somewhat below room temperature.

With an increase of the acting stresses, but below the minimum fracture stress, the rate of development and completeness of recovery of the hardened metal in the heat-affected zone increases due to acceleration of the recovery process of microstresses and ordering of the grain boundary structure.

Card 5/6

L 56461-65
ACCESSION NR: AP5018627

Thermomechanical treatment is one of the new and effective ways to increase the resistance of weld joints of hardened steels to the formation of cold cracks. Orig. art. has 2 figures, 7 graphs, and 1 table.

ASSOCIATION: Institut metallurgii im. A. A. Baykova(Institute of Metallurgy)

SUBMITTED: 00	ENCL: 00	SUB CODE: MM
NO REF SOV: 006	OTHER: 000	JPRS

Card 6/6

L 26614-65 EWT(m)/EWP(w)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b) Pf-4 IJP(c)
ACCESSION NR: AP5005066 MJW/JD/HM S/0135/65/000/002/0007/0010

AUTHOR: Belov, V. V. (Engineer); Shorshorov, M. Kh. (Doctor of technical sciences) 33 28 B

TITLE: Evaluation of susceptibility of steel welds to cold crack formation by the methods of rigid specimens and IMET-4

SOURCE: Svarochnoye proizvodstvo, no. 2, 1965, 7-10

TOPIC TAGS: heat resistant steel, steel welding, steel weld, weld cracking steel, complex alloyed steel, super strength steel, weld crack resistance, weld cracking susceptibility

ABSTRACT: A study has been made of the susceptibility of steel welds to cold cracking. Several steels, including complex alloyed super-strength steels, 40KhGSNMTA and 30Kh2GSNVM, and heat-resistant steels 25Kh11M3F(ET801) and 13Kh12N2MF, were tested (see Fig. 1 of the Enclosure). The CTS and "cross" tests and the IMET-4 test were used. It was concluded that the critical cooling rate can be used as criterion for evaluation of susceptibility to cold cracking but only in welding with a continuous cooling to room temperature. In welding

Card 1/4 [Original paper gives EI801 instead of ET801]

L 26614-65

ACCESSION NR: AP5005066

2

with preheating or refrigeration, the temperature of preheating and holding time and the temperature of refrigeration are the criteria. At identical conditions of preheating and refrigeration, even in welding under different conditions, the cooling rate of the heat-affected zone can be used as a criterion. In rigid tests, cold cracks appear at cooling rates corresponding to the formation of the structures with a comparatively high content of martensite. The cross test is much more rigid than CTS test; the cold cracks in the former test do not form only when cooling rates are 2—3 times lower and the martensite content is two times lower than in a CTS test. For steels with a high hardenability, the preheating temperature should be about 50C lower than the M_s temperature to ensure an adequate self-tempering of martensite and relaxation processes in welding with continuous cooling. Steels with a higher M_s temperature are generally less susceptible to cold cracking. The results of the IMET-4 test are in satisfactory agreement with those of the other tests used. Orig. art. has: 3 figures and 3 tables. [MS]

ASSOCIATION: Institut metallurgii im. A. A. Baykova (Institute of Metallurgy)

Card 2/4

BELOV, V.V., inzh.; SHORSHOROV, M.Kh., doktor tekhn. nauk

Comparative evaluation of the resistance of steel to cold crack formation in welding rigid samples and by the IMET-4 method. Svar. proizv. no.2:7-10 F '65. (MIRA 18:3)

1. Institut metallurgii im. A.A. Baykova.

L 7037-66 EWT(d)/EWT(l)/EED(k)-2/T/EWP(l)/EWA(h) IJP(c) BB/GG

ACC NR: AP5026812 SOURCE CODE: UR/0286/65/000/017/0093/0093

AUTHOR: Alakseyev, M. N.; Belov, V. V.

ORG: none

TITLE: A comparator. Class 42, No. 174443 [announced by Organization of the State Committee on Radio Electronics SSSR (Organizatsiya Gosudarstvennogo komiteta po radioelektronike SSSR)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 17, 1965, 93

TOPIC TAGS: computer component, pneumatic computer, pneumatic device

ABSTRACT: This Author's Certificate introduces a comparator which contains a number of cells equal to the number of digital places. The devices uses jet-type pneumatic elements. The unit is designed for determining the equality (inequality) of two numbers given as pneumatic signals. Each cell contains a passive comparison element with two inputs. The output channels of this element are connected to the input channels of a three-input active "OR" gate. The output channel of the three-input "OR" gate in each cell is connected to the input channels of the corresponding element in the subsequent cell.

UDC: 681.142.07

SUB CODE: DP/ SUBM DATE: 06Jan64/ ORIG REF: 000/ OTH REF: 000

Card 1/1

L 44307-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD

ACC NR: AP6019839 (N) SOURCE CODE: UR/0370/66/000/001/0165/0171

AUTHOR: Shorshorov, M. Kh. (Moscow); Belov, V. V. (Moscow)

ORG: none

TITLE: Energy characteristics of the delayed fracture of hardened steel

SOURCE: AN SSSR. Izvestiya. Metally, no. 1, 1966, 165-171

TOPIC TAGS: chromium steel, material fracture, atomic theory, crystal theory, metal stress / 40Kh chromium steel

ABSTRACT: The nature of cold cracks during the heat treatment and welding of hardening steels is now normally interpreted from the standpoint of the modern theory of delayed fracture. Further developing this theory, one of the authors (Shorshorov, M. Kh. Izv. AN SSSR, OTN, Metallurgiya i toplivo, 1962, no. 4) had offered the hypothesis that vacancies play a major role in the mechanism of the formation of microcrack nuclei along the grain boundaries, on showing that the considerable excess concentrations of vacancies in hardened steel stem from quenching from high temperatures and plastic deformation during martensitic transformation. Natural or applied stresses induce viscoelastic flow (shear formation) along the bound-

Card 1/3 UDC: 669.156

L 44357-65

ACC NR: AP6019839

2

aries of grains oriented in the direction of action of these stresses, and they also induce the accumulation of triaxial normal tensile microstresses at transverse boundaries. The interaction between applied stresses and the field of these microstresses results in an energy gradient which causes the excess vacancies to migrate toward the transverse boundaries, so that the effectiveness of these boundaries as vacancy concentrators sharply increases. In this connection, the authors describe a series of experiments undertaken to analyze the activation energy of the process of delayed fracture of hardened steel. Flat specimens of 40Kh chromium steel were electrically heated to 1573-1603°K for 30-40 sec at the rate of 40-60 deg/sec, and then cooled in calm air at the rate of 35-45 deg/sec to the test temperature (373, 348, 323, 293, 273 and 77°K). During cooling the specimens were subjected to loads of 300 kg/mm^3 and higher. After such treatment all the specimens had the structure of martensite with residual austenite. Subsequent mechanical tests of the specimens showed that they are prone to delayed fracture only at near-room temperatures (273-348°K). The activation energy u_σ of the process of delayed fracture was estimated with the aid of an Arrhenius-Zhurkov equation, and analysis of the test findings showed that u_σ decreases from 0.77 to 0.63-0.59 and 0.39-0.34 ev when the applied stress σ increases from 0 to the minimum breaking stress σ_r^{min} = 300-400 kg/mm^2 and to σ = 900-1000 kg/mm^2, respectively. Approximate calculations of the activation energy of the movement of vacancies for 40Kh steel show that the activation energy for monovacancies is ~1.15 ev and for bivacancies, ~0.65 ev. Hence, as σ increases,

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L 44307-66
ACC NR: AP6019839

u_σ begins to change from values close to the activation energy of the movement of monovacancies to those corresponding to the activation energy of the movement of bivancancies, and hence also of shear. This proves the aforementioned hypothesis of the major role played by vacancies in the mechanism of the formation of microcracks during delayed-fracture tests of hardened steel or during the rise of cold cracks in welded joints. Orig. art. has: 7 figures, 1 table, 2 formulas.

SUB CODE: 11,20/ SUBM DATE: 04Aug64/ ORIG REF: 011/

Card 3/3 ULR

L 08942-67

ACC NR: AP6011262 SOURCE CODE: UR/0413/66/000/006/0100/0101

AUTHORS: Belov, V. V.; Kuleshov, Yu. P. 21

ORG: none

TITLE: Pressure stabilizer. Class 42, No. 179997

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 6, 1966, 100-101

TOPIC TAGS: automatic pressure control, pressure regulator

ABSTRACT: This Author Certificate presents a pressure stabilizer. To improve the characteristics, the stabilizer contains two jet amplifiers. The inverse output of the first amplifier is connected to the load and the supply channel of the second amplifier (see Fig. 1). The direct output of the second amplifier is connected to the control channel of the first amplifier. The pressure supply inlet line is connected to the supply channel of the first amplifier and through a divider to the control channel of the second amplifier.

Card 1/2 UDC: 621.646.4

L 08942-67

ACC NR: AP6011262

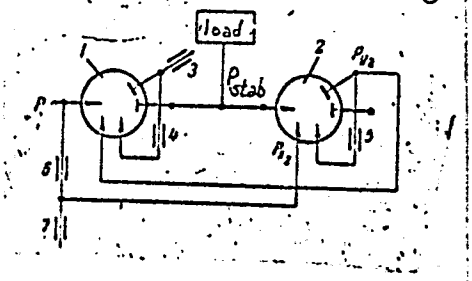

Fig. 1. 1 and 2 - amplifiers; 3-7 - resistances; P_{stab} - output pressure; P_{y_2} - negative feedback signal; P_{x_2} - control signal; P - pressure supply

Orig. art. has: 1 diagram.

SUB CODE: 20, 14/ SUBM DATE: 04Dec64

Card 2/2 nst

L 02980-67 EWT(m)/EWP(w)/T/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AP6032455 SOURCE CODE: UR/0129/66/000/009/0030/0033

60
59
B

AUTHOR: Shorshorov, M. Kh.; Antipov, V. I.; Senin, A. M.; Belov, V. V.

ORG: Institute of Metallurgy, AN SSSR (Institut metallurgii AN SSSR)

TITLE: Polygonization of austenite subjected to low temperature thermomechanical treatment

SOURCE: Metallovedeniye i termicheskaya obrabotka metallov, no. 9, 1966, 30-33 and appropriate insert facing p. 49

TOPIC TAGS: polygonization, cryogenic metalworking, steel, austenite steel, ~~mechanical treatment~~, high strength steel/15Kh11MF steel, 15Kh12NMVFA steel, 25Kh2GSNVM steel, 28Kh3SNMVFA steel

ABSTRACT: The effect of polygonization annealing on the properties of superstrength steels subjected to low temperature thermomechanical treatment (LTMT) has been investigated. The schematic layout of the continuous process combining LTMT and polygonization annealing (Author Certificate 155161) is shown in Fig. 1. Specimens of 15Kh11MF, 15Kh12NMVFA, 25Kh2GSNVM, and 28Kh3SNMVFA steels were heated to 1050, 1100 and 1200C and cooled in an air jet to 550C, at which temperature they were stretched by 30—37%, immediately rapidly reheated to 550—700C, kept at that temperature from 0 to 5000 sec (polygonization annealing), and then cooled in an air jet. It was found that polygonization annealing improved the strength only very

Card 1/2 UDC: 621.789.669.14.018.85

L 02980-67

ACC NR: AP6032455

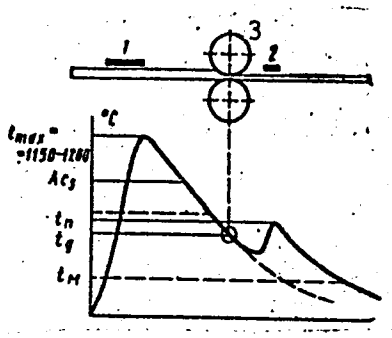

Fig. 1. Layout of continuous LTMT with polygonization annealing

1 - Inductor for recrystallization annealing; 2 - inductor for polygonization annealing; 3 - rolls.

slightly, but greatly increased the ductility. For instance, conventionally heat treated 25Kh2GSVM and 28Kh3SNMVFA steels had a tensile strength of 190 kg/mm^2 and 198 kg/mm^2, and a reduction of area of 20% and 17%, respectively. The same steels, after LTMT but without polygonization, had a strength of 212 kg/mm^2 and 223 kg/mm^2, and a reduction of area of 26.8% and 26%, respectively. After polygonization annealing at 600C for 20—100 sec (optimal conditions), the strength was 217—218 kg/mm^2 and 225 kg/mm^2, and the reduction of area 36.6—38% and 34%, respectively. Orig. art. has: 4 figures and 1 table.

SUB CODE: 11/ SUBM DATE: none/ ORIG REF: 003/ ATD PRESS: 5099

Card 2/2

BELOV, V. Ya.

Vtorichnye Tsvetnye Metally, published by Metallurgizdat, Moscow, 1950

Sum #148

BELOV, V.Ya.

ISTRIN, Mikhail Aleksandrovich; LEVITIN, Vul'f Khananovich; RUBINSHTEYN, Iosif Grigor'yevich; MILLER, Solomon Mikhaylovich; MILLER, L.Ye., kandidat tekhnicheskikh nauk, retsenzent; BELOV, V.Ya., redaktor; CHERNOV, A.N., redaktor; ARKHANGEL'SKAYA, M.S., redaktor izdatel'stva; MIKHAYLOVA, V.V., tekhnicheskiy redaktor

[Secondary nonferrous metals] Vtorichnye tsvetnye metally; spravochnik. Izd. 3-e, perer. i dop. Pod red. V.IA.Belova. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po chernoi i tsvetnoi metallurgii. Pt.1. [Procurement and primary processing] Zagotovka i pervichnaia obrabotka. 1956. 558 p. (MIRA 9:7)
(Nonferrous metals)

Belov, V. Ya.

135-4-6/15

SUBJECT: USSR/Welding.

AUTHORS: Sinitsyn, A.M., Engineer, Belov, V.Ya, Engineer, and Gitlevich, A.D., Engineer.

TITLE: Production-Line Manufacturing of Overhead Traveling Crane End Beams. (Potochnaya liniya proizvodstva kontsevykh balok mostovykh kranov).

PERIODICAL: "Svarochnoye Proizvodstvo", 1957, # 4, pp 18-21 (USSR)

ABSTRACT: The article describes the first production line in the USSR for assembling by welding major component parts of overhead traveling cranes. The All-Union Designing-Technological Institute (ВПТИ) presently works on mechanizing the entire assembling process of these cranes. The authors emphasize the fact that there are presently - as a rule - no specialized work stands and fixtures for assembling available, and the semi-automatic and automatic welding methods are not being sufficiently applied.

The described production line consists of 8 work stands, all of which are described and shown in illustrations.

Card 1/2

135-4-6/15

TITLE: Production-Line Manufacturing of Overhead Traveling Crane End Beams. (Potochnaya liniya proizvodstva kontsevykh balok mostovykh kranov).

It is estimated that the production line will raise work efficiency 2-fold and the output per 1 m^2 (to 10 tons) 3-fold.

As co-workers in designing and building the production line, which has been developed by "ВПТИ" in collaboration with the plant "Pod'yemnik", beside the authors of the article the following engineers were mentioned: A.S. Pakhomov, L.A. Zhivotinskiy, N.E. Gusev, F.M. Feniksov, A.S. Yatsenko, I.A. Brovko, V.I. Kochineva, M.I. Pustyl'nik, A.A. Kalashnikov.

ASSOCIATION: "ВПТИ МТМ" (VPTI MTM) and the plant "Podyemnik".

PRESENTED BY:

SUBMITTED:

AVAILABLE: At the Library of Congress.

Card 2/2

135-58-8-10/20

AUTHORS: Zhivotinskiy, L. A., Gitlevich, A.D. and Belov, V. Ya., Engineers

TITLE: The Mechanization of Channeled Metal Structure Assembly (Mekhanizatsiya sborki korobchatykh metallokonstruktsiy)

PERIODICAL: Svarochnoye proizvodstvo, 1958, Nr 8, pp 33 - 35 (USSR)

ABSTRACT: Information is given on mechanized welding technology and devices for the production of channeled beams of overhead travelling cranes. Movable -shape welding "gantries", especially for welding channeled beams, are described and illustrated. The gantries were devised by designers V. Ya. Belov, I. A. Brovko, F. P. Feniksov and technologists A. D. Gitlevich, N. Ye. Gusev and A. M. Sinitsyn. There are 3 photos and 4 diagrams.

Card 1/2

The Mechanization of Channeled Metal Structure Assembly 135-58-8-10/20

ASSOCIATION: Vsesoyuznyy proyektno-tekhnologicheskiy institut tyazhelogo mashinostroyeniya (VPTI) (All-Union Institute for Planning and Designing of Heavy Machinebuilding)

1. Beams--Welding--Automation

Card 2/2

SOV-135-58-10-12/19

AUTHORS: Zhivotinskiy, L.A., Gitlevich, A.D., and Belov, V.Ya., Engineers

TITLE: Installation for Assembling and Welding Overhead Travelling Cranes (Ustanovka dlya sborki i svarki kranovykh mostov)

PERIODICAL: Svarochnoye proizvodstvo, 1958, Nr 10, pp 33-35 (USSR)

ABSTRACT: In order to improve the technology of assembling overhead travelling cranes, the VPTI of Heavy Machinebuilding, together with several other plants, designed and put into practical use specialized universal installations, eliminating deficiencies which occurred in previous methods. Illustrated descriptions are presented on an installation for assembling and welding overhead cranes with a span of 10 - 32 m and bases of 3,500; 4,400; 4,900; 5,000 and 5,100 mm. In order to increase precision in adjusting the undercarriage of face beams, the Institute together with the Mogilevskiy kranovyy institut (Mogilev Cranebuilding Plant), designed a special stand, shown in fig. 3; the use

Card 1/2

Installation for Assembling and Welding Overhead Travelling Cranes

of bolt joints to improve the connection of main and face beams is recommended. There are 2 photos and 5 diagrams.

ASSOCIATION: VPTI tyazhelogo mashinostroyeniya (All-Union Institute of Designing and Technology for Heavy Machinebuilding)

1. Industrial plants--USSR 2. Cranes--Installation 3. Welding --Applications

BELOV, V.Ye.

Static theory of a cylindrical magnetron with internal cathode.
Izv. vys. ucheb. zav.; radiofiz. 6 no.5:1065-1067 '63.
(MIRA 16:12)

ACC NR: AT6022252 SOURCE CODE: UR/0000/66/000/000/0019/0025

AUTHOR: Belov, V. Ye.; Rodygin, L. V.

ORG: none

TITLE: Static theory of the cylindrical magnetron — Part 1. Bidromic conditions

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966, Sektsiya elektroniki. Doklady. Moscow, 1966, 19-25

TOPIC TAGS: magnetron, magnetron theory SHF, electron motion

ABSTRACT: The stationary travel of electrons in a cylindrical magnetron is described by a system of four differential equations; after transformations and an independent-variable replacement, the resulting system of approximate differential equations is solved. Analysis of the solution brings about these conclusions: (1) The radial movement of electrons has a pattern of "dashing": upon emergence

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ACC NR: AT6022252

from the cathode, the electron gradually accelerates, then dashes, and then decelerates to stop; (2) The total electron velocity also contains a transverse component which is small only in the near-cathode region; when the electron dashes, the transverse component exceeds the radial component by several times; hence, it is safe to assume that the electrons move along Brillouin trajectories. Limits of applicability of the approximate solutions were determined by a numerical integration of the original system of differential equations on a digital computer. Orig. art. has: 2 figures and 14 formulas.

SUB CODE: 09 / SUBM DATE: 09Apr66
20/

Card 2/2

ACC NR: AT6022253 SOURCE CODE: UR/0000/66/000/000/0026/0028

AUTHOR: Belov, V. Ye.; Rodygin, L. V.

ORG: none

TITLE: Static theory of the cylindrical magnetron — Part 2. Multilayer conditions

SOURCE: Vsesoyuznaya nauchnaya sessiya, posvyashchennaya Dnyu radio. 22d, 1966. Sektsiya elektroniki. Doklady. Moscow, 1966, 26-28

TOPIC TAGS: magnetron, magnetron theory, SHF

ABSTRACT: Over a virtual cathode, the parameter "a" in Slater's nonlinear equation: $\frac{d}{d\xi}\left(\xi\frac{d\xi^2}{d\xi}\right)=\frac{a}{\xi}-\left(\xi+\frac{1}{\xi^2}\right)$, can take on any value (Microwave Electronics, 1951, para. 13.7, MIT). The operating conditions requiring two or more

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ACC NR: AT6022253

parameters "a" for their description are called "multilayer," the layer being a part of the electron cloud situated between the adjacent surfaces of the cathode, virtual cathodes, and the critical surface. All layers, except for the next-to-cathode layer, are called "suspended." With $a > 0$, the suspended state has one velocity maximum and cannot be limited on top by a virtual cathode. With $a = 0$, the suspended state is a Brillouin stream. The possibility of three distinct sets of operating conditions in a cylindrical magnetron depending on H and ξ (non-dimentional radius) is pointed out. Orig. art. has: 4 formulas.

SUB CODE: 09 / SUBM DATE: 09Apr66 / ORIG REF: 002 / OTH REF: 003

Card 2/2

BELOV, V.Ye.; BILENKO, A.I.; SHVACHKO, M.S.; BRAILOVSKII, N.G., inzhener, redaktor; KHITROV, P.A., tekhnicheskiy redaktor

[Unit method of repairing freight cars] Uzlovoi metod remonta gruzovykh vagonov; opyt vagonnogo depo stantsii Likhobory-Moskovsko-Okruzhnoi dorogi. Moskva, Gos. transp. zhel-dor. izd-vo, 1954. 54 p. (Railroads—Freight-cars) (MLRA 8:6)

L 62851-65 EWT(l)/EEC(b)-2/EWA(h) Pn-4/Pn-4/Pac-4/Peb/Pi-4/Pj-4 JM

ACCESSION NR: AR5017564 UR/0058/65/000/006/H028/H028

SOURCE: Ref. zh. Fizika, Abs. 6Zh190

AUTHOR: Belov, V. Ye.

TITLE: Concerning the status of the question of the static theory of a near-planar magnetron with non-zero initial electron velocities

CITED SOURCE: Uch. zap. Checheno-Ingushsk. gos. ped. in-t, no. 22, 1964, 87-98

TOPIC TAGS: magnetron theory, planar magnetron, electron velocity distribution, single stream mode, two stream mode

TRANSLATION: A critical analysis is made of the papers dealing with the statistical theory of magnetrons in which the current is limited by the space charge, when no account is taken in the theory of the velocity distribution of the electrons. All possible types of magnetrons and the modifications of their static mode are classified. It is indicated that, by starting from a qualitative analysis of the

Card 1/2

L 62851-65

ACCESSION NR: AR5017564

forms of the trajectories and by using data obtained by numerical integration of nonlinear differential equations of motion of the electrons with $H > H_{crit}$, many authors conclude that only the Brillouin mode (single-current mode) is possible under the condition $1 < r_{crit}/r_c < 2$ (r_{crit} -- cutoff radius, r_c -- cathode radius). When $r_{crit}/r_c < 2$, both two-stream and single-stream modes are possible. In the case of a planar magnetron, on the other hand, many investigators have reached the conclusion that only the single-stream mode is possible, although there are several papers which refute this statement. It is noted that there is still no complete and accurate analysis of the static mode of the magnetron. G. Korostelev.

SUB CODE: EC ENCL: 00

Card 2/2

BELOV, V.YU.; POTOLOKOV, S.I.

Barrels

Progressive work methods in a barrel factory. Ryb. khoz., 28, No. 6, 1952.

9. Monthly List of Russian Accessions, Library of Congress, October 1952 1953, Uncl.

BELOV, YA

Telecommunication

Supervisors should be aided in eliminating damage. Sov. sviaz. 3, No. 3, 1953.

Monthly List of Russian Accessions, Library of Congress, June 1953. Uncl.

BELOV, Ye.

Organization of norms research work in enterprises of the Rostov Economic Council. Biul. nauch. inform.; trud i zar. plata 4 no.7:43-46 '61. (MIRA 14:8)
(Rostov Province--Production standards--Research)

BELOV, Ye.A.

Effect of organomineral fertilizers on microbiological processes in soil and under plant cover. Agrobiologiia no.2:236-241 Mr-Ap '59. (MIRA 12:6)

1. Moskovskoye otdeleniye Vsesoyuznogo nauchno-issledovatel'skogo instituta sel'skokhozyaystvennoy mikrobiologii.
(Field crops--Fertilizers and manures)
(Soil micro-organisms)

BELOV, Ye. A., Cand Agric Sci (diss) -- "The effect of organic-mineral fertilizer on the microflora of the soil and the root system of plants". Kishinev, 1960. 17 pp (Min Agric Moldavian SSR, Kishinev Agric Inst im M. V. Frunze), 100 copies (KL, No 12, 1960, 129)

BEREZOVA, Ye.F.; BELOV, Ye.A.; SOROKINA, T.A.

Effect of organomineral mixtures on the microflora of soils and the root system of plants. Trudy Vses. inst. sel'khoz. mikrobiol. no.14:192-208 '58. (MIRA 15:4)
(Rhizosphere microbiology) (Fertilizers and manures)

BELOV, Ye. I.: Master Med Sci (diss) -- "Determination of the interrelation between respiration and blood circulation under physical loads". Yaroslavl', 1958. 18 pp (Yaroslavl' Med Inst), 250 copies (KL, No 2, 1959, 124)

BELOV, Yu.I.

Mechanisms of acute changes in the average volume of the thoracic cage and intrapleural pressure. Fiziol.zhur. 45 no.4:432-439 Ap '59. (MIRA 12:6)

1. From the department of pathologic physiology, Medical Institute, Yaroslavl.
(THORAX, physiol.
thoracic volume & intrapleural pressure changes in albino rats, eff. of various factors (Rus))
(PLEURAL, physiol.
same)

BELOV, Ye.I.

Relationship between intrathoracic pressure variations and the tonus of the smooth muscles of the lung. Fiziol.zhur. 45 no.11: 1384-1387 N '59. (MIRA 13:5)

1. From the department of pathologic physiology, Medical Institute, Yaroslavl.

(LUNGS physiol.)

BELOV, YE. I.

BELOV, YE. I. : "The rational use of land area for annual fodder crops under the conditions of Leningrad Oblast." Min Higher Education USSR. Leningrad Agricultural Inst. Leningrad, 1956 (Dissertation for the Degree of Candidate in Science of Agriculture)

So: Knizhnaya Letopis', No. 18, 1956

USSR/Cultivated Plants - Grains. M-4

Abs Jour : Ref Zhur - Biol., No 9, 1958, 39210.

Author : Sobolev, S.L., Belov, Ye.I.

Inst : Leningrad Agricultural Institute.

Title : Spring-Summer Sowings of Winter Rye Mixed with Summer Crops.

Orig Pub : Zap. Leningr. s-kh. in-ta, 1956, vyp. 11, 273-281.

Abstract : The experiment was conducted in Pushkina, Leningrad oblast during 1954-55. Rye was sown together with barley. It was also planted with peas, vetch and oats. The yield was increased by 1½ - 2 times per ha. Not only did the total crop of barley and rye grains increase, but the crop of leguminous plants also increased considerably, and the fodder mixture was sowed as a second crop.

Card 1/2

USSR/Cultivated Plants - Grains. M-4

Abs Jour : Ref Zhur - Biol., No 9, 1958, 39210

The general state of the rye plants was much better than in a control sowing, but the grain yield was lower. This is explained by the poor wintering of the plants caused by the extreme heavy loss of moisture in the dense grass growth of the winter crops. Nevertheless, the combined sowing is 200-300% more profitable than unmixed sowing. -- V.A. Vnuchkova

Card 2/2

USSR/Cultivated Plants. Forage Crops. M

Abs Jour: Ref Zhur-Biol., No 17, 1958, 77711.

Author : Belov, Ye. I.
Inst :
Title : Occupied Fallows.

Orig Pub: Nauka i peredovoy opyt v s.kh., 1957, No 5, 25-27.

Abstract: In 1954-1956, in the training-experimental farm of the Leningrad Agricultural Institute, different mixtures were studied as follow occupant plants: vetch+oats, vetch + maple pea + oats, wollypod vetch + oats with spring sowing and red clover. The greatest harvest was obtained with reaping during setting of the vetches. In 1954 wollypod + oats gave 269 c/ha, and the least harvest was provided by spring vetch + oats (179 c/ha). With

Card : 1/2

BELOV, Ye.I., kand. sel'skokhozyaystvennykh nauk

Sowing winter rye with spring crops. Zemledelie 6 no.4:93-94 Ap '58. (MIRA 11:4)

(Companion crops) (Rye)

BELOV, Ye.I., kand. sel'skokhozyaystvennykh nauk.

Raising green forage crops on the fallow. Zhivotnovodstvo 20 no.4:34-36 Ap '58. (MIRA 11:3)

(Forage plants)

BELOV, Yevgeniy Ivanovich; BELOVA, Tamara Pavlovna; ALEKSEYEV, Yu.V., red.; CHUNAYEVA, Z.V., tekhn. red.

[Green fallows in the northwestern U.S.S.R.] Zaniatye pary v severo-zapadnoi zone SSSR. Leningrad, Gos. izd-vo sel'khoz. lit-ry, 1960. 62 p. (MIRA 14:9)

(Fallowing)

BELOV, Ye.I. (Kuybyshev)

Potentials for reducing the idle time of cars on approach tracks. Zhel. dor. transp. 47 no.9:86-88 S '65. (MIRA 18:9)

1. Nachal'nik otdela pod"yezdnykh putey Kuybyshevskoy dorogi.

BELOV, YE.M.

Eradicating Bang's disease from karakul farms.
Kar. i zver 5 no. 1 1952

1. BELOV, YE. M.

2. USSR (600)

4. Karakul Sheep

7. Typing up flock division with disease prevention problems. Kar. i zver. N°. 6 1952.

9. Monthly List of Russian Accessions, Library of Congress, April 1953, Uncl.

BELOV, Ye.M.

Economic effectiveness of veterinary measures in theileriasis.
Veterinariia 35 no.9:32-35 S '58. (MIRA 11:9)

1. Starshiy veterinarnyy vrach-inspektor Glavnogo upravleniya veterinarii Ministerstva sel'skogo khozyaystva SSSR.
(Theileriasis)

BELOV, E. M. (Main Veteranary Surgeon, State Inspection on Veterinary Medicine of the USSR Ministry of Agriculture).

"About the organization of a State Veterinary Control of the Fishery Reservoirs of the USSR."

Veterinariya, Vol. 38, No. 3, 1961, p. 15.

AKHMEDOV, A.M., prof.; DUSTOVA, R.T., aspirant; BELOV, Ye.M., kand. veterin. nauk; ANTONOVA, M.Ye., kand. veterin. nauk; NOSKOV, A.I., kand. veterin. nauk; LIPINA, A.N., aspirant; SIMONOV, A.P., aspirant; BOCHAROV, D.A., kand. sel'skokhoz. nauk; KHRENOV, N.M., assistent

Sanitary and veterinary hygiene. Veterinariia 41 no.4:89-100 Ap '64. (MIRA 17:8)

1. Samarkandskiy sel'skokhozyaystvennyy institut (for Akhmedov, Dustova). 2. Nauchno-proizvodstvennaya laboratoriya po bor'be s boleznyami molodnyaka sel'skokhozyaystvennykh zhivotnykh Ministerstva proizvodstva i zagotovok sel'skokhozyaystvennykh produktov RSFSR. (for Antonova). 3. Vsesoyuznyy nauchno- issledovatel'skiy institut veterinarnoy sanitarii (for Noskov). 4. Institut zhivotnovodstva Ministerstva sel'skogo khozyaystva Uzbekskoy SSR (for Lipina). 5. Vsesoyuznyy institut gel'mintologii imeni akademika K.I. Skryabina (for Simonov). 6. Moskovskiy tekhnologicheskiy institut myasnoy i molochnoy promyshlennosti (for Bocharov). 7. Khersonskiy sel'skokhozyaystvennyy institut imeni A.D. TSyurupy (for Khrenov).

BYELOV, E. M.

USSR/Electricity
Transmission Lines
Construction

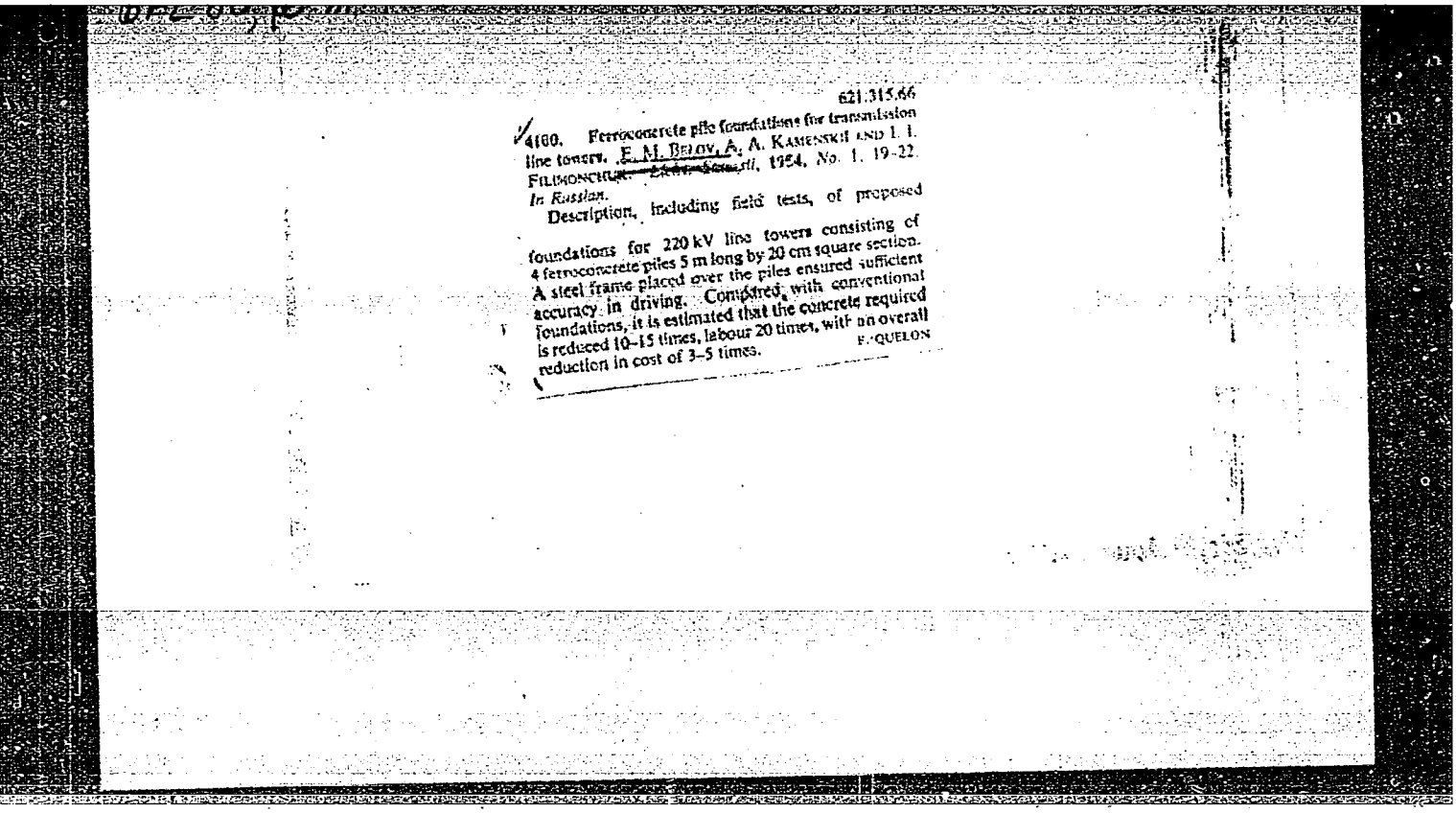
Dec 48

"Securing Transmission Line Towers on Rocky Terrain," E. M. Byelov, Engr, 3 pp

"Elek Stants" No 12

Describes tests recently concluded on rigidity of anchor bolts set in Portland cement. Several conclusions reached on the effects of bolt diameter and amount of concrete used on rigidity of structure. Author stresses need for further research on vibration effects on the towers.

54/49756



621.315.66

4160. Ferroconcrete pile foundations for transmission line towers. E. M. Belov, A. A. Kamenskii and I. I. Fil'monchuk. *Elektrichestvo*, 1954, No. 1, 19–22. *In Russian.*

Description, including field tests, of proposed foundations for 220 kV line towers consisting of 4 ferroconcrete piles 5 m long by 20 cm square section. A steel frame placed over the piles ensured sufficient accuracy in driving. Compared with conventional foundations, it is estimated that the concrete required is reduced 10–15 times, labour 20 times, with an overall reduction in cost of 3–5 times.

F. QUELON

66189

SOV/146-59-2-9/23

~~9(2), 21(8)~~ 21.2300

AUTHOR: Belov, Ye.M., and Razin, V.M.

TITLE: Extremal Regulator of Betatron Radiation Intensity

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - priborostroyeniye, 1959, Nr 2, pp 52-55 (USSR)

ABSTRACT: To increase the stability of a betatron performance, the method of stabilization of its individual nodes is the most expedient. Practical research has shown that in order to attain a stable betatron performance, a periodical trimming of the electron injection phase in respect to the betatron magnetic field alteration is necessary, as the dependence of electrons entrainment on the injection impulse phase is very critical. Alteration of entrained electron number from cycle to cycle can bear a static and continuous character. Static alterations are provoked by different casual phenomena affecting the entrainment conditions. Continuous alterations are, on the whole, explained by the influence of variable network tension upon the injection impulse phase. The most efficient method

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Extremal Regulator of Betatron Radiation Intensity

of radiation intensity stabilization is the application of a deviation regulator which ensures the necessary injection phase trimming depending on the variation of radiation intensity. Such a regulator ensures the tracing of the maximum radiation intensity independently of the causes of the change. It works under two basic conditions: 1) conditions of automatic scan of radiation intensity maximum, and 2) conditions of automatic tracing of radiation intensity maximum. A block diagram of an extremal intensity regulator is given in Fig 1. 1 = is electronic commutator which ensures the injection impulse formation and realizes its commutation through different channels; 2 = is a synchronizer for starting the betatron injection; 3 = is a radiation meter; it delivers the bearing tension for sanatrons which depends on the alteration of radiation intensity; 4 and 5 are sanatrons; delay of the sanatron 4 is larger by 0.1-0.2 mcsec than that of sanatron 5. The principal layout of the extremal regulator of

Extremal Regulator of Betatron Radiation Intensity

radiation intensity is given in Fig 2. Recommended by the Vtoraya mezhvuzovskaya konferentsiya po elektronnym uskoritelyam (2nd Inter-Vuz Conference on Electronic Accelerators). There are 2 diagrams and 3 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnic Institute)

SUBMITTED: June 11, 1958

4

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21.2100

66545

SOV/144-59-4-13/13

AUTHORS: Belov, Ye.M., Aspirant, Gorbunov, V.I., Assistant, Cand. of Technical Sciences, Kuznetsov, A.I., Engineer, Titov, V.N., Candidate of Technical Sciences, Docent and Shipunov, I.V., Chief Engineer of Physicotechnical Dept.

TITLE: A 25 Mev Double-beam Betatron

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 4, pp 123 - 128 (USSR)

ABSTRACT: The 25 MeV betatron was designed and built by the Tomsk Polytechnical Institute and can be used to obtain a dose of 50-60 roentgens per min at a distance of 1 m. The betatron was first described in Ref 1 and was designed to work off the ordinary 50 cps mains. In order to increase the intensity both half-periods of the sinusoidal accelerating magnetic field were used as well as supply currents at a tripled frequency (150 cps). A 50 kW frequency tripler was especially designed and built by the Institute. In connection with the use of the increased frequency, experiments were carried out in order to choose the type of windings and the cooling system for the

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A 25 Mev Double-beam Betatron SOV/144-59-4-13/13

electromagnet. The results of these experiments and the final form of the electromagnet are now described. The betatron uses a Ш-shaped magnet whose core is made of sheet steel. The magnet is demountable and consists of two symmetric sections. The two-channel electron injection system, working on 150 cps, is shown in Figure 4. The two-channel synchronization scheme is shown in Figure 6. Other details described include a megavoltmeter, vacuum system and the injector.
There are 8 figures and 5 Soviet references.

ASSOCIATION: Tomskiy politekhnicheskiy institut (Tomsk Polytechnical Institute)

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21.2100

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S/142/60/000/01/010/022
E140/E463

AUTHORS: Belov, Ye.M. and Titov, V.N.

TITLE: Betatron Gamma-Radiation Stabilizer

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Radiotekhnika, 1960, Nr 1, pp 94-99 (USSR)

ABSTRACT: The stabilizer is based on the principle of automatic phase control of the injection pulse. It realizes almost instantaneous correction at a radiation level of 95 to 97% of maximum with variation of any destabilization factors. It consists of a photomultiplier detector with cathode follower, voltage amplifier, amplitude discriminator, integrating circuit, phase-inverter, power amplifier, trigger circuit, cathode follower and controlled multivibrator. It may operate as a self-triggered time base of a DC amplifier. The sawtooth waveform controls the phase or injection pulse generation over the required limits. The experimental results are given in Fig 3 to 5. They show the difference between regulated and non-regulated relative outputs against phase variation, current and injection voltage respectively. At the present time,

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Betatron Gamma-Radiation Stabilizer

the authors are developing a further instrument for operation at maximum radiation intensity. There are 5 figures and 6 references, 4 of which are Soviet and 2 English.

SUBMITTED: June 3, 1959

~~REKOMENDOVANA Elektrotekhnich~~

Recommended Elektrotechnical laboratory, Phys-Tech. Faculty, Tomsk Order Labor Red Banner Polytech. Inst.

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Card 2/2

28573
S/143/61/000/008/005/005
D203/D305

26.2160

AUTHORS: Belov, Ye. M., and Zhlobich, A.V., Engineers

TITLE: Application of a two-channel capacitance indicator of pressure for investigating an ejector with a pulsing gas flow

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 8, 1961, 70-76

TEXT: The authors describe an electronic pressure-capacitor indicator with an oscilloscopic registration of the pressures derived for studying the behavior of the gas ejectors of impulse gas turbines. This indicator was developed at the Tomsk Thermo-Technological Laboratory ТЭМИИТ(TEMIIT) as one of the devices for studying the pulsating flows from the ejectors' outgoing gases which are utilized in the impulse turbines. The latter are used as the power for air cooling in a number of engines, e.g. tractor ЧТЗ(ChTZ) of 250 hp TATRA engines, Porsche motors, diesel compressor 2CK (2SK) and others. The behavior of the gas flow in

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the cross-section of the nozzle depends on the number and the order of the joint outlets and varies in character from an unstable and intermittent shape to a continuous pulsing, approaching a steady flow. According to experiments it was found that the ejector output which is evaluated by a coefficient of ejection, substantially increases with the presence of breaks between the separate gas pulses. It was found that the coefficient of ejection of an intermittent, pulsing flow q_p increases with the frequency ν, with the decrease in consumption of the gas $\frac{G1}{G_1 max}$, and increases with parameter $\frac{\tau}{T}$. The coefficient of ejection is $q_p = \frac{G''_2}{G_1}$, where G_1 - the output by weight of the active ejecting medium, $G_1 max$ - the output with acoustic velocity in the nozzle, G''_2 - the output by weight of the passive (ejected) medium, - equal to time of gas flow from the nozzle during the period of pulsation T. Fig. 1

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Application of a two-channel ...

shows the results of an experiment $\frac{q_p}{q_{ST}} = f(\upsilon)$, with various values of $\frac{\tau}{T}$ at a constant consumption of gas $\frac{G_1}{G_1 max} = 0.3$. The characteristics were obtained for an ejector, having the mixture chamber of $D_{KS} = 52$ mm, diameter and length of 7 calibers, a diffusor of length $L_Д(L_D) = 248$ mm and conical nozzle with a diameter $d_S = 18$ mm. Fig.2 shows the variation of the coefficients of ejection q_p and q_{ST} depending on the length of the mixing chamber $\frac{L_{KC}}{d_{KC}}$, the experiments being carried out with an ejector without the diffusor and with the diameter of the mixing chamber $d_{KS} = 52$ mm, pulsing frequency $\upsilon =$ 10/sec, and where $\frac{\tau}{T} = 0.36$. The experiments have shown that with some dimensions of the sucking main inlet of the ejector and in some frequency ranges resonances appear with an ejector in the sucking pipe conductor with diameter 92 mm, and 930 mm long; it

Application of a two-channel ...

was possible to increase the coefficient of ejection by 10 to 12%, at a frequency ν = 7 to 10 per sec. and at $\frac{F}{f}$ = 0.36 (curve a, Fig. 1). A block diagram of the two-channel capacitance indicator is then shown and described. The authors explain the function of the indicator in an example of the second channel, which is the most sensitive, in Fig. 4. A signal generator of lamp $Л_1$6Ж8 ($L_1$6Zh8) with an inductive T, and having a frequency of 290 Kcps and generating oscillations with an amplitude of 75V was considered. A good selection was obtained by screening, filters and h.f. chokes. The differences in frequency of generators 0.2 Kcps was accounted for. By condenser G_6 it is possible to vary somewhat the frequency of the signal generator. A bridge balance is composed of inductive capacitance impedances, one of the arms of the bridge working as indicator, a diaphragm and a stationary plate, the inductances being connected in opposition. Because of the capacitance change (action of gases on diaphragm), the voltage in the bridge is modulated. A high channel sensitivity is obtained by using a thin diaphragm 0.07 mm and a 3 stage amplifier (x 10,000). The output

is detected and, acting on the cathode repeater $Л_4$6Ж6С ($L_4$6P6S) changes the anode current up to 50 μA in the case of unbalance. Finally, the authors discuss the presence of intermittent pulsing flows in ejectors recorded on oscillograms by a two-channel capacitance indicator. Indirect experiments have shown the complicated nature of the behavior of the gas flow on an ejector, with the conclusion that the dimensions of an optimal ejector for the intermittent pulsing flow differ from those of an ejector for a constant gas flow. There are 6 figures and 6 Soviet-bloc references.

ASSOCIATION: Tomskiy ordena trudovogo krasnogo znameni politekhnicheskiy institut imeni S.M. Kirova (Tomsk Order of the Red Banner of Labor Polytechnic Institute imeni S.M. Kirov) (Belov); Tomskiy elektromekhanicheskiy institut inzhenerov zheleznodorozhnogo transporta (Tomsk Electrical-Mechanical Institute of Railroad Transportation Engineers)

SUBMITTED: July 23, 1960

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Application of a two-channel ...

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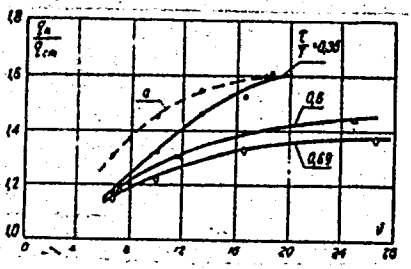

Fig. 1

Dependence of relative coefficient of ejection $\frac{q_p}{q_{ST}}$ on the pulsation frequency during constant consumption of the acting medium

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BROVMAN, M.Ya.; RIMEN, V.Kh.; BELOV, Ye.M.; KRYLOV, A.P.; VOLKOGON, G.M.

Investigation of electric power parameters in the rolling of nonferrous metals. TSvet. met. 34 no.8:60-65 Ag '61. (MIRA 14:9)

1. Yuzhno-Ural'skiy zavod tyazhelogo mashinostroyeniya (for Brovman, Rimen, Belov). 2. Orskiy zavod obrabotki tsvetnykh metallov (for Krylov, Volkogon).
(Rolling (Metalwork)) (Nonferrous metals)

BELOV, Ye.M., inzh.; ZHLOBICH, A.V., inzh.

Use of a two-channel capacitance-type pressure indicator for studying an ejector with pulsating gas flow. Izv. vys. uchab. zav.; energ. 4 no.8:70-76 Ag '61. (MIRA 14:8)

1. Tomskiy ordena Trudovogo Krasnogo Znameni politekhnicheskiy institut imeni S.M. Kirova (for Belov). 2. Tomskiy elektromekhanicheskiy institut inzhenerov zheleznodorozhnogo transporta (for Zhlobich).

(Gas and oil engines--Cooling)
(Pressure gauges)

DOBROSKOK, I.I.; SURIN, Ye.V.; BROVMAN, M.Ya.; MIKHAYLOV, G.M.; KRULEVETSKIY, S.A. Prinimali uchastiye: ASFANDIYAROV, R.F.; BELOV, Ye.M.; IVANOV, V.I.; MARKOV, V.I.; SOLOV'YEV, Yu.P.; PIMENOV, F.A.; TUROMSHEV, A.F.; KHVES'KO, V.A.; NIKITSKIY, N.V.

Investigating the power parameters of a continuous steel casting plant. Stal' 22 no.3:223-225 Mr '62. (MIRA 15:3)

1. Yuzhnoural'skiy mashinostroitel'nyy zavod (for Asfandiyarov, Belov, Ivanov, Markov, Solov'yev). 2. Novolipetskiy metallurgicheskiy zavod (for Pimenov, Turomshev, Khves'ko). 3. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Nikitskiy).
(Continuous casting—Equipment and supplies)

BELOV, Ye.M.

Organization fo the state veterinary inspection of waters used for fish culture in the U.S.S.R. Veterinariia 38 no.3:15-16 Mr '61 (MIRA 18:1)

1. Glavnyy veterinarnyy vrach Gosudarstvennoy inspektsii po veterinarii Ministerstva sel'skogo khozyaystva SSSR.

L 44679-66 EWT(m)

ACC NR: AP6005361 SOURCE CODE: UR/0413/66/000/001/0106/0106

AUTHORS: Belov, Ye. M.; Gorodilov, V. M.; Minayev, I. G.; Titov, V. N.

ORG: none

TITLE: Ionization pulse gas analyzer detector. Class 42, No. 177681 [announced by Tomsk Polytechnic Institute of the Order of the Workers' Red Banner (Tomskiy ordena trudovogo krasnogo znameni politekhnicheskiy institut)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 1, 1966, 106

TOPIC TAGS: gas analyzer, gas composition analyzer, gas ionization

ABSTRACT: This Author Certificate presents an ionization pulse gas analyzer detector containing a chamber with two coaxial electrodes. An ionization source, e.g., an α-emitter, is located inside the chamber. To increase the sensitivity of the detector to electronegative gases (e.g., oxygen in argon), the ionization source is located at the bottom of an annular slot in the insulating end cover of the chamber (see Fig. 1).

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UDC: 543.51.08