"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

$$
\begin{aligned}
E_r &= -A\frac{kn}{r}\sin\frac{\pi}{b}z\,[J_n(\varkappa r) - BN_n(\varkappa r)]\,e^{-jn\varphi},\\
E_\varphi &= -jAk\varkappa\sin\frac{\pi}{b}z\,[\dot{J}_n(\varkappa r) - B\dot{N}_n(\varkappa r)]\,e^{-jn\varphi},\\
E_z &= 0,\\
H_z &= A\varkappa^2\sin\frac{\pi}{b}z\,[J_n(\varkappa r) - BN_n(\varkappa r)\,e^{-jn\varphi},\\
H_r &= A\frac{\pi}{b}\varkappa\cos\frac{\pi}{b}z\,[\dot{J}_n(\varkappa r) - B\dot{N}_n(\varkappa r)]\,e^{-jn\varphi},\\
H_\varphi &= jA\frac{n}{r}\frac{\pi}{b}\cos\frac{\pi}{b}z\,[\dot{J}_n(\varkappa r) - B\dot{N}_n(\varkappa r)]\,e^{-jn\varphi},
\end{aligned}
\qquad (1)
$$

where $\varkappa = k\sqrt{1-(\lambda/2b)^2}$; $k = 2\pi/\lambda$; λ - wavelength in free space; b - height of waveguide in z direction; a - half width of the interaction space; h_1, h_2 - height of the diaphragm; $n = (c/v_\varphi)kR$ - azimuth propagation constant; R - mean bend radius; c - velocity of light; v_φ - wave phase velocity along radius R; m, p - indices of the field with respect to r and z respectively; J_n, $\dot{J}_n$, N_n, $\dot{N}_n$ -

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Bessel and Neumann functions of order n and their argument derivatives; B - RHS (or LHS) of the dispersion,

$$\frac{\operatorname{tg} \varkappa h_1 J_n[\varkappa(R-a)] + \dot{J}_n[\varkappa(R-a)]}{\operatorname{tg} \varkappa h_1 N_n[\varkappa(R-a)] + \dot{N}_n[\varkappa(R-a)]} = \frac{\operatorname{tg} \varkappa h_2 J_n[\varkappa(R+a)] - \dot{J}_n[\varkappa(R+a)]}{\operatorname{tg} \varkappa h_2 N_n[\varkappa(R+a)] - \dot{N}_n[\varkappa(R+a)]} \quad (2)$$

The antisymmetrical waves in a system loaded along the external wall are slowed down with respect to the waves in a straight waveguide of similar dimensions. It can also be seen that in a symmetrically loaded waveguide the resonators placed along the outer wall of the bend store very little energy of the symmetrical (inphase) wave, e.g. that from the point of view of slowing-down, the antisymmetrical waves are more efficient. The coupling impedance R_{cp} is found from

$$R_{cp} = \frac{E^2}{2\beta^2 P}, \quad (4)$$

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in which $\beta = 2\pi/\lambda_w$; P - average over one period energy flow through the interaction region of the waveguide. In a bent waveguide the coupling impedance rises for antisymmetrical waves in a symmetrical loaded waveguide and at a certain R begins to exceed that of symmetrical waves. A similar effect takes place in asymmetrically loaded waveguides, in which, however, the coupling impedance does not fall to zero with increasing radius, but tends to the value

$$R_{cp} = 480\left(\frac{\lambda}{2b}\right)^2 \frac{\pi^2\kappa^2 \operatorname{sh}^2 \pi\frac{a}{b}}{b^2\left(\operatorname{sh} 2\frac{\pi a}{b} \operatorname{ch} 2\frac{\pi a}{b} + 2\frac{\pi a}{b}\right)} \qquad (6)$$

for a straight ridged waveguide. It is stated in conclusiong that in waveguides with large curvatures ($kR \simeq 15$) antisymmetrical waves should be made to propagate in symmetrically loaded waveguides. With $kR > 20$ the most effective coupling of the electron streams can be achieved, however, only for a symmetrical wave in the symmetrical loaded waveguide. The author acknowledges the help of L.V.

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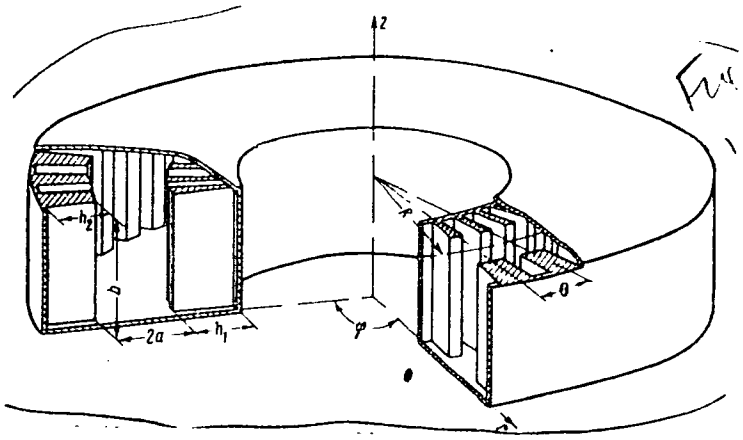
The influence of a bend ... S/109/61/006/009/008/018
D201/D302

Chukilina. There are 4 figures and 8 Soviet-bloc references.

SUBMITTED: November 21, 1960

Fig. 1.



Card 5/5

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOKOLOVSKIY, V.D Marshal Sovetskogo Soyuza; BELYAYEV, A.I., polkovnik; GASTILOVICH, A I doktor voyennykh nauk, prof. general-polkovnik, DENISENKO, V.K., polkovnik; ZAV'YALOV, I.G., general-mayor, KOLECHITSKIY, V.V general-mayor, LARIONOV, V.V., kand. voyennykh nauk polkovnik, NYRKOV, G.M., polkovnik; PAROT'KIN, I.V., kand voyennykh nauk polkovnik; PROKHOROV, A.A general-mayor, POPOV, A.S., polkovnik; SAL'NIKOV, K.I., polkovnik, SHIMANSKIY, A.N., polkovnik; CHEREDNICHENKO, M.I., general mayor; SHCHEGOLEV, A.I., polkovnik, MOROZOV, B.N., polkovnik red.; KONOVALOVA, Ye.K., tekhn red

[Military strategy] Voennaia strategiia; Izd.2, ispr i dop. Moskva, Voenizdat, 1963 503 p. (MIRA 16:10)

(Strategy)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.N.; MARENKOV, V.M.; TSIKIN, B.G.; SHISHENINA, L.G.

Uniformly bent periodically septate waveguides for cyclic electron accelerators. Izv. TPI 122:80-88 '62.

(MIRA 17:9)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 62854-65 EWT(m)/EPA(w)-2/EWA(m)-2 Pt-7 IJP(c)

ACCESSION NR: AR5017565 UR/0058/65/000/006/H038/H038 33 B

SOURCE: Ref. zh. Fizika, Abs. 6Zh249

AUTHORS: Morozov, B. N.; Mel'kova, G. G.

TITLE: On the possible use of smooth slow-wave systems in waveguide cyclic accelerators 19

CITED SOURCE: Tr. Tomskogo in-ta radioelektron. i elektron. tekhn., v. 3, 1964, 119-125

TOPIC TAGS: cyclic accelerator, particle accelerator, waveguide, accelerator

TRANSLATION: The authors consider the characteristics of waves of different types propagating in a rectangular waveguide bent in the shape of a ring, from the point of view of using it in cyclic accelerators. Such a system has several advantages over periodic structures. A shortcoming of the system, however, is the presence of

Card 1/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 62854-65

ACCESSION NR: AR5017565

higher modes, which possibly leads to difficulties when the system is used. I. Beluga

SUB CODE: NP, EC ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

ZAV'YALOV, Ivan Grigor'yevich, general-mayor; MOROZOV, B.N., polkovnik, red.

[Speed, time, and space in modern warfare] Skorost', vremia i prostranstvo v sovremennoi voine. Moskva, Voenizdat, 1965. 190 p. (MIRA 18:8)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOTNIKOV, Vladimir Fedotovich, podpolkovnik; PLASTUNOV, Mikhail Markelovich, podpolkovnik; MOROZOV, B.N., polkovnik, red.

[The commander assumes his office; advice to the young commander of a company or battery] Komandir vstupaet v dolzhnost'; sovety molodomu komandiru roty i batarei. Moskva, Voenizdat, 1965. 196 p. (MIRA 18:9)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

KURASOV, V.V., general armii, red.; [illegible], [illegible], polkovnik, red.

[Dictionary of basic military terms] Slovar' osnovnykh voennykh terminov. Moskva, Voenizdat, 19[illegible]. 147 p. (MIRA [illegible])

1. Moscow. Voyennaya akademiya imeni M.V.Frunze.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 3460-66 EWT(m)/EPA(w)-2/EWA(m)-2 LJP(c) DM

ACCESSION NR: AP5016934 UR/0089/65/018/006/0633/0634

621.384.612

53
45
13

AUTHORS: Vorob'yev, A. A.; Didenko, A. N.; Lisitsyn, A. I.; Morozov, B. N.; Potekhin, Yu. I.; Salivon, L. G.; Filatova, R. M.

TITLE: 10 MeV waveguide synchrotron 19

SOURCE: Atomnaya energiya, v. 18, no. 6, 1965, 633-634

TOPIC TAGS: synchrotron, circular accelerator, electron accelerator, high energy accelerator, waveguide

ABSTRACT: After first listing some of the theoretical problems involved in the design of accelerators of this type and dealt with at Institut yadernoy fiziki Tomskogo politekhnicheskogo instituta (Scientific Research Institute of Nuclear Physics of the Tomsk Polytechnic Institute), the authors describe briefly the 10 MeV synchrotron constructed and in operation at this institute since December 1963. The accelerating system is a rectangular waveguide bent in the shape of a ring, loaded with diaphragms on the outer wall. A standing H_{018} mode

Card 1/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

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L 3460-66

ACCESSION NR: AP5016934

8

in the $\pi/2$ mode is excited in the waveguide. The radius of the equilibrium orbit of the electrons, on which the phase velocity of the H_{018} wave is equal to the velocity of light, is 13 cm. The waveguide interaction space measures 6 x 6 cm. The system Q is approximately 300, the shunt resistance is approximately 0.07 Meg. The electrons are first accelerated to 3 MeV in the betatron mode by a Kerst gun. The high-frequency electromagnetic oscillations are generated by a pulsed 10-cm generator of 5,000 μsec pulses of 400 W each. The operating pressure is 2×10^{-5} mm Hg. Several of the control and construction features are briefly described. 'We thank the students of the Tomsk Polytechnic Institute V. I. Zhuravlev, A. M. Voloshin, P. I. Matyazh, A. A. Kushch, and A. N. Pershin, who participated in the adjustment and startup of the installation, and also Ye. S. Kovalenko and A. P. Ol'shanskiy for participating in the development of the accelerator theory, its design, and model test.' Orig. art. has: 1 figure

ASSOCIATION: None

Card 2/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 3460-66

ACCESSION NR: AP5016934

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SUBMITTED: 09Jul64 ENCL: 00 SUB CODE: NP

NR REF SOV: 007 OTHER: 001

BVK

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B. N.

AID P - 5197

Subject : USSR/Engineering

Card 1/1 Pub. 103 - 19/24

Author : Morozov, B. N.

Title : Mechanical removal of machine-tool cuttings

Periodical : Stan. i instr., 7, 43, Jl 1956

Abstract : A brief description of the scrapping conveyers which are used at the Automobile Plant im. Likhachev (ZIL) for removal of metal cuttings. One drawing and 2 photos.

Institution : As above

Submitted : No date

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.N., inzh.

Processing of metal chips at the Likhachev Automobil Plant.
Mashinostroitel' no.11:9-10 N '59. (MIRA 13:3)
(Moscow--Automobile industry--Technological innovations)
(Metal cutting--Technological innovations)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, Boris Nikolayevich; BOMSHTEYN, Z.D., inzh., retsenzent; MOROZOVA, M.N., inzh., red.; EL'KIND, V.D., tekhn. red.; SMIRNOVA, G.V., tekhn. red.

[Modern means of conveying and reprocessing metal shavings] Sovremennye sredstva transportirovaniia i pererabotki metallicheskoi struzhki. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1961. 92 p. (MIRA 14:11)
(Metal cutting) (Conveying machinery)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.N.; TRUNOVSKAYA, A.S.

Efficient utilization of hides. Kozh.-obuv. prom. 6 no.2: 42-44 F'64. (MIRA 17:5)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.N.

Longitudinal magnetic waves in bent resonator delay systems. Izv.vys.ucheb.zav.; radiotekh. 8 no.4:460-463 Jl-Ag '65. (MIRA 18:11)

1. Submitted July 1, 1963.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.N.

Potentials for the growth of labor productivity in the leather industry of the Volga-Vyatka Economic Region. Kozh.-obuv. prom. 6 no.7:7-11 Jl '64. (MIRA 17:8)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SCHASTNYY, N.G., inzh.-polkovnik; KISELEV, A.K., podpolkovnik tekhn. sluzhby; SOLDATOV, A.S., inzh.-polkovnik; KOLENSKIY, L.Ya., inzh.-polkovnik; STEPANOV, I.P., podpolkovnik; SMIRNOV, V.I., inzh.-kapitan 2 ranga; MOROZOV, B.N., red.

[Invention and innovation in the Armed Forces of the U.S.S.R.] Izobretatel'stvo i ratsionalizatsiia v vooruzhennykh silakh SSSR. Moskva, Voenizdat, 1964. 63 p. (MIRA 17:12)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

D'YACHENKO, V.V., kand.tekhn.nauk; MOROZOV, B.P., inzh.; TYLKINA, M.A., kand.tekhn.nauk; SAVITSKIY, Ye.M., doktor khim.nauk; Prinimali uchastiye: VINOKUROV, V.P.; BIRYUKOVA, L.V.

Welding molybdenum with an addition alloying of the weld metal by rhenium. Svar.proizv. no.7:1-4 Jl '62. (MIRA 15:12)

1. Moskovskiy aviatsionnyy tekhnologicheskiy institut (for D'yachenko, Morozov). 2. Institut metallurgii im. A.A.Baykova (for Tylkina, Savitskiy).
(Molybdenum—Welding) (Rhenium)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B. P.

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The Second All-Union Conference on Rhenium, sponsored by the Institute of Metallurgy imeni A. A. Baykov, Academy of Sciences USSR, and the State Institute of Rare Metals, was held in Moscow 19-21 November 1962. A total of 335 representatives from 83 scientific institutions and industrial establishments participated. Among the reports presented were the following: autoclave extraction of Re from Cu concentrates (A. P. Zelikman and A. A. Peredereyev); Re extraction from the gaseous phase (V. P. Savrayev and N. L. Peysakhov); recovery of Re by sorption and ion interchange (V. I. Bibikova, V. V. Il'ichenko, K. B. Lebedev, G. Sh. Tyurekhodzhayeva, V. V. Yermilov, Ye. S. Raimbekov, and M. I. Filimonov); production of carbonyl Re (A. A. Ginzburg); electrolytic production of high-purity Re and electroplating with Re (Z. M. S[illegible]va and A. A. Nikitina); Re coatings on refractory metals produced by thermal dissociation of Re chlorides (A. N. Zelikman and N. V. Baryshnikov); plastic deformation and thermomechanical treatment of Re (V. I. Karavaytsev and Yu. A. Sokolov); growth of Re single crystals and effect of O_2 on their properties (Ye. M. Savitskiy and G. Ye. Chuprikov); Re-Mo, Re-W, and Re—precious-metal alloys (Ye. M. Savitskiy, M. A. Tylkina, and K. B. Povarova); synthesis of Re nitrides, silicides, phosphides, and selenides (G. V. Samsonov, V. A. Obolonchik, and V. S. Neshpor); weldability of Re-Mo and Re-W alloys (V. V. D'yachenko, B. P. Morozov, and G. N. Klobanov); new fields of application for Re and Re alloys (M. A. Tylkina and Ye. M. Savitskiy); and Re-Mo alloy for thermocouples (S. K. Danishevskiy, Yu. A. Kocherzhinskiy, and G. B. Lapp). [WW]

Tsvetnyye metally, no. 4, Apr 1963, pp 92-93

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 23619-65 EWT(m)/EPF(n)-2/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(b) Pf-4/Pu-4
IJP(c) MJW/JD/HM/JG/WB/MLK

ACCESSION NR: AT5002783 S/0000/64/000/000/0208/0211

B+1

AUTHOR: D'yachenko, V. V.; Morozov, B. P.

TITLE: Alloying of the metal of molybdenum welds with rhenium

SOURCE: Vsesoyuznoye soveshchaniye po probleme reniya. 2d, Moscow, 1962, Reniy (Rhenium); trudy soveshchaniya. Moscow, Izd-vo Nauka, 1964, 208-211

TOPIC TAGS: rhenium, molybdenum welding, molybdenum alloy, rhenium alloy, electron beam welding, argon arc welding, weld plasticity, weld structure, molybdenum oxidation

ABSTRACT: The use of rhenium for alloying molybdenum welds raises their plasticity. The authors welded cast sheet molybdenum and VM1 alloy by means of argon arc and electron beam welding, and rhenium was introduced into the weld with or as the filler metal. The rhenium content of the weld metal was 0 - 80 wt.%. A study of the microstructure of the welds showed that the weld metal containing less than 50% Re had the usual solid solution structure. When the Re content was over 50%, the weld metal displayed considerable cracking due to the formation of the brittle σ phase. The change in the hardness of the weld metal with changing composition, and the oxidation of molybdenum in air at 300, 500, and 800C as a

Card 1/2

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ACCESSION NR: AT5002783

function of the rhenium content, were investigated. It was found that the oxidation rate of welds containing rhenium was slight up to 500C and differed very little from the oxidation rate of the base metal. At 800C, the degree of oxidation rose considerably and increased with rising rhenium content. "The experiments on electron beam welding were carried out under the direction of Ye. N. Sivov." Orig. art. has: 3 figures and 2 tables.

ASSOCIATION: None

SUBMITTED: 05Aug64 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 002

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 14503-66 EWT(1)/EWT(m)/EPF(n)-2/EWG(m)/EWA(d)/EWP(t)/EWP(z)/EWP(b) IJP(c)

ACC NR: AP6003277 MJW/JD/HW/JG SOURCE CODE: UR/0135/66/000/001/0002/0004

AUTHOR: D'yachenko, V. V. (Candidate of technical sciences); Sivov, Ye. N. (Engineer); Morozov, B. P. (Engineer)

ORG: MATI

TITLE: Welding of molybdenum and niobium with stainless steel

SOURCE: Svarochnoye proizvodstvo, no. 1, 1966, 2-4

TOPIC TAGS: electron beam welding, molybdenum, niobium, stainless steel, structural steel, weld evaluation, arc welding, butt welding

ABSTRACT: The welding of refractory metals (Nb, Mo, W) to Fe-, Ni- and Co-based constructional steels is complicated by the marked differences in their crystalline structure and thermophysical properties. One of the techniques of surmounting this difficulty is to melt steel without melting the refractory metal. In this connection the authors show that it is possible to obtain welded joints of TsM-2A molybdenum alloy with 1Kh18N9T stainless steel, by means of electron beam welding in a vacuum or arc welding in a controlled (argon) atmosphere so as to fuse steel only (without fusing the refractory metal. The technique best recommended for this purpose is that of butt or lap welding with beading of the edges of the molten metal (steel), and in all cases the weld pool must be displaced by 2/3 diameter in the direction of steel. Fundament-

Card 1/2 UDC: 621.791:669.28:669.293:669.15-194

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

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ACC NR: AP6003277

ally similar results were obtained when welding joints of VN-2 niobium alloy and 1Kh18N9T steel. The optimal welding regimes are: voltages, amperages and welding rates for TsM-2A and steel --16-16.5 v, 9-20 a, 30-40 m/hr; for VN-2 and steel -- 9-16.5 kv, 13-25 a, 30 m/hr. It is found that the strength and plasticity of the welded joints thus produced are chiefly determined by the structure of the weld metal which, in its turn, depends on the state of the surface of the welded metal, the fit of edges and the welding regime. Joints welded by the electron-beam method display a higher strength and plasticity than joints welded by the controlled-atmosphere arc method. Orig. art. has: 5 figures, 4 tables.

SUB CODE: 11, 13/ SUBM DATE: none/ ORIG REF: 002/ OTH REF: 002

Joining of dissimilar metals

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

GUBEYEV, K.A., inzh.-energetik; PROKAZOV, M.S., inzh.-energetik;
MOROZOV, B.P., inzh.-energetik

Utilization of condensate in the treatment of printed fabrics.
Tekst. prom. 25 no.12:63 D '65. (MIRA 19:1)

1. Kirzhachskiy shelkovyy kombinat.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

ACC NR: AT6032626 (A) SOURCE CODE: UR/0000/66/000/000/0077/0094

AUTHOR: L'yachenko, V. I. (Candidate of technical sciences); Morozov, B. P. (Engineer); Sivov, Ye. N. (Engineer)

ORG: none

TITLE: Fusion welding of dissimilar metals

SOURCE: Moscow. Vysshiye tekhnicheskoye uchilishche. Avtomatizatsiya, mekhanizatsiya i tekhnologiya protsessov svarki (Automation, mechanization and technology of welding processes) Moscow, Izd-vo Mashinostroyeniye, 1966, 77-94

TOPIC TAGS: ~~[illegible]~~ welding, refractory metal, ~~[illegible]~~ stainless steel, molybdenum alloy, niobium alloy, stainless steel, fusion welding, electron beam welding, TIG welding/TsM-2A molybdenum alloy, VN-2 niobium alloy, 1Kh18N9T steel

ABSTRACT: Experiments have been made at the Moscow Aviation Technological Institute (MATI) to develop a welding method which would ensure direct joining of a refractory metal to steel by fusing the low-melting metal without fusing it or with minimum fusing the refractory metal. TsM-2A molybdenum alloy sheets, 0.3—0.5 mm thick, and VN-2 niobium alloy sheets 0.3 mm thick, were welded directly to each other or to 1Kh18N9T stainless steel sheets 0.4—0.8 mm thick by electron beam or automatic TIG welding in a chamber with a controlled atmosphere. Both these methods were found to be satisfactory for direct welding TsM-2A and VN-2 alloys to 1Kh18N9T steel.

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ACC NR: AT6032626

The welds made under optimum conditions by fusing only the steel without fusing the refractory metal, and no cracks or pores, were vacuum-tight and had a satisfactory strength and ductility. Satisfactory direct joining of TsM-2A molybdenum alloy to VN2 niobium alloy has been achieved only by electron-beam welding in vacuum. Welds with a satisfactory ductility have been made with minimum fusion of molybdenum, so that the weld metal contained max 10% Mo. Arc-welded joints of these two alloys had a very brittle weld metal with numerous transverse cracks. Lap and butt joints with flanged edges of the metal to be fused are recommended for direct welding of the investigated dissimilar metals. The strength and ductility of the welded joints are determined primarily by the weld metal structure which, in turn, depends on the condition of the metal surface, fitting of the edges, and welding conditions. Electron-beam welded joints are stronger and more ductile than joints arcwelded in a controlled atmosphere. Orig. art. has: 10 figures and 7 tables.

SUB CODE: 13,11/ SUBM DATE: 14May66/ ORIG REF: 003/ OTH REF: 004/

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B.S.

(3)

Gaseous porosity of magnesium-alloy coatings. M. V. Sharov, B. S. Morozov, and V. M. Pletenev. *Liteinoe Proizvodstvo* 1953, No. 6, 16–19.—Cavities found in Mg-alloy castings and usually attributed to shrinkage phenomena are probably caused by H evolving on solidification. In a series of expts., 0.05–0.30% H was introduced in the molten bath of Mg alloys through adding carnotite flux contg. 10% H, samples were analyzed for the gas after solidification, and the castings were studied by the x-ray technique. Higher H concn. lead to increased porosity. The degree of porosity was divided into 11 groups and then compared with porosity found in plant products. Identicity of porosity was established. The effect of H on tensile strength and elongation begins to be felt with H_2 concn. of 18 cc./100 g. and is directly proportional to the extent of porosity.

J. D. Gat

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

Morozov, B.S.

Chlorine Treatment of Magnesium-Base Alloys. M. V. Sharov and B. S. Morozov (Liteinoe Proizvodstvo, 1964, (8), 20-22).—(In Russian). Charges of Mg alloy ML5 weighing 200 kg. were melted in an oil-fired furnace, and degassed with Cl_2. The results show that the H content of molten metal was reduced from 17-19 to 8-10 c.c./100 g. The d and mech. properties of the castings were improved without impairing their corrosion-resistance.—V. K.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

[illegible], R. [illegible].

[illegible], R. [illegible]. --"[illegible] Removal in Magnesium Alloys and [illegible] [illegible] Elimination [illegible]." [illegible] Higher Education USSR. [illegible] Aviation Technological Inst. [illegible], [illegible]. (Dissertation for the [illegible] [illegible])

[illegible]: [illegible] Letopis [illegible], [illegible], [illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

137-1958-2-2691

Translation from Referativnye zhurnal Metallurgiya 1958 Nr 2 p 71 (USSR

AUTHORS Sharov M V Morozov B S Serebryakov V V

TITLE Degassing Magnesium Alloys With Argon (Degazatsiya magniyevykh splavov argonom)

PERIODICAL V sb Metallurg osnovy lit va legkikh splavov Moscow Oborongiz 1957 pp 341-359

ABSTRACT A study was made to ascertain methods and conditions of degassing the ML 5 alloy (an aircraft magnesium alloy) that would assure a steady yield of sound castings The degassing properties of Ar were tested on this alloy A molten ML 5 alloy containing 15-19 cm^3/100 g of H was subjected to degassing by Ar The heats occurred in a Fe crucible in an electric shaft furnace The weight of the charge was 6-7 kg (of the alloy) The alloy was wet-fluxed at 750-760° The Ar was blown through the molten metal which had been heated to 750-760° A study was made of the modifying action of CCl_4 The optimum conditions for combined treatment of ML 5 (i e , degassing with Ar and modification with CCl_4) proved to be 0 5 percent Ar and 0 4 percent CCl_4 at 750-760° -- which assured sound castings with good mechanical properties

Card 1/2

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[illegible]-1958-2-2691

Degassing Magnesium Alloys with Argon

The combined treatment of the melt (which degassed, modified, and refined the ML 5 alloy) made it possible to combine the three operations into one. These methods for degassing alloy ML 5 are economical and do not require the use of materials that are costly or not readily available. It was further established that blowing Ar through the alloy, then modifying it with magnesite (a consecutive treatment) assured casts of a fine crystalline grain and consistent mechanical properties. Neither the combined treatment nor the one following it affected adversely the corrosion resistance of the alloy.

O B

1. Magnesium alloys--Degassing 2. Argon--Applications

Card 2/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 4177-66 EWT(m)/EWP(e)/EWP(i)/EWA(d)/EWP(v)/T/EWP(t)/EWP(k)/EWP(z)/EWP(b)/EWA(c)
ACC NR: AP5024405 JD/HW/HW/JG LJP(c) MJW(CL)/ SOURCE CODE: UR/0286/65/000/015/0083/0083

INVENTOR: Estulin, G. V.; Zimina, L. N.; Kosheleva, G. F.; Topilin, V. V.; Boyarinova, A. P.; Tsvetkova, V. K.; Khatalakh, R. F.; Shnyakin, N. S.; Polyakov, K. N.; Vil'nikov, M. V.; Belyakova, K. A.; Il'in, A. A.; Morozov, B. S.; Bogdanovskiy, S. P.; Khrakovskaya, P. S.

ORG: none

TITLE: Wrought, heat-resistant, nickel-base alloy. Class 40, No. 173418 [announced by Central Scientific Research Institute of Ferrous Metallurgy im. Bardin (Tsentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii); z-d "Elektrostal'" im. I. F. Tevosyan]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 15, 1965, 83

TOPIC TAGS: alloy, nickel alloy, chromium containing alloy, molybdenum containing alloy, tungsten containing alloy, titanium containing alloy, aluminum containing alloy, carbon containing alloy, beryllium containing alloy, cerium containing alloy

ABSTRACT: This Author Certificate introduces a wrought, heat-resistant, nickel-base alloy with improved mechanical properties and weldability. The alloy contains 17 to 20% chromium, 8—12% molybdenum, 0—6% tungsten, 2—3% titanium, 1—2% aluminum, 0.1% max carbon, 6% max iron, 0.01% max sulfur, 0.015 max phosphorus, 0.5% max manganese, 0.6% max silicon, 0.01% max boron, and 0.02% max cerium. [AZ]

SUB CODE: MM/ SUBM DATE: 05Feb64/ ORIG REF: 000/ OTH REF: 000/ ATD PRESS: 4128

Card 1/1 UDC: 669.245

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

AUTHORS: Barmin, V. V., Manavets, V. I., Morozov, B. V., Pershin, I. I. 56-34-4-7/60

TITLE: The Angular Correlations of the $\pi^+ - \mu^+ - e^+$ - Decays in a Propane Bubble Chamber (Uglovyye korrelyatsii $\pi^+ - \mu^+ - e^+$ - raspadov v propanovoy puzyr'kovoy kamere)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol. 34, Nr 4, pp. 830-835 (USSR)

ABSTRACT: This work investigates the angular distribution of the positrons in the $\pi^+ - \mu^+ - e^+$ -decay and determines a certain quantity "a" for propane for the entire energy spectrum of the positrons. This quantity a is contained in the term for the angular distribution of the positrons $dN = (1 + a \cos\theta)/4\pi$, which is valid in the case of non-conservation of the parity in the subsequent terms of the decay of the positive pion and of the positive myon. θ denotes the angle between the primary directions of motion of the positive myon and of the positron. For this work a propane bubble chamber with a volume of 2 liters was inserted into a beam of positive pions of the synchrocyclotron of the United Institute for Nuclear Research. The positive pions were produced by a beam of positive 650-MeV-protons in a

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

The Angular Correlation of the $\pi^+ - \mu^+ - e^+$ - Decays in a Propane Bubble Chamber 56-31-4 7/60

polyethylene target. The traces of the particles in the chamber were taken by a stereoscopic camera. 2 possibilities for the determination of the angular distributions are shown. A diagram illustrates the angular distributions of the positrons for 2 series of takings with 4353 and 3408 cases. The asymmetry coefficient for the first series amounts to $-0,163 \pm 0,037$. The magnetic field of 1.5 gauss causes a low depolarisation of the positive myons. For the second series of takings $a = -0,214 \pm 0,05$. From this for both series the mean value $a = -0,19 \pm 0,03$ results. Both distributions agree well with the assumption of the positive myons in the $\pi^+ - \mu^+$ -decay. Remarkable distortions in the shape of the angular distribution of the positrons can occur only as a consequence of overlooking of $\pi^+ - \mu^+ - e^+$ decays in the scanning of the film. The ratio $a_{propane}/a_{carbon}$ determines the degree of the depolarisation of the positive myons in propane. The coefficient of asymmetry for the elementary process, computed from the found mean experimental value of a, has the value $-0,255 \pm 0,033$. At the end the author thanks the Member of the Academy A.I. Ali-

Card 2/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

The Angular Correlations of the $\pi^+ - \mu^+ - e^+$ - Decays in a Propane Bubble Chamber 56-34-4-7/6c

khanov for providing the theme and the discussion of the results, G.P. Yeliseyev and V.A. Lyubimov for valuable remarks, V.P. Dzhelepov for his collaboration at the accelerator, and V.G. Zaytseva, N.S. Konoplev, I.A. Sosunov, V.M. Golubchikov, V.N. Luzin for their participation in the evaluation of the experimental data. There are 4 figures and 9 references, 2 of which are Soviet.

SUBMITTED: November 15, 1957

1. Electrons--Scattering 2. Mesons--Decay 3. Electrons--Decay

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

31(8) SOV/56-35-2-56/66

AUTHORS: Barmin, V. V., Kanavets, V. P., Morozov, B. V., Pershin, I. I.

TITLE: The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum (Energeticheskaya zavisimost' koeffitsiyenta asimmetrii v $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ -raspadakh dlya nizkoenergeticheskoy chasti spektra pozitronov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958, Vol 35, Nr 2(8), pp 542-544 (USSR)

ABSTRACT: Recently, the authors investigated the asymmetry coefficient a' for various parts of the energy spectrum of the protons. The energy of the positrons was measured according to the method of multiple scattering. First a formula is given for the distribution of the decay positrons; it takes the non-conservation of parity into account. The available experimental data essentially concern a constant figuring in the above-mentioned equation. The difference between the asymmetry coefficients a'_{II} and a'_{IV} (which were calculated according

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SOV/56-35-2-56/60

The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum

to the two-component and four-component theory, respectively) in the high-energy part of the spectrum is by far lower than in the low-energy part. The experiments of the investigation of the asymmetry coefficient for the low-energy part of the spectrum are especially advantageous for the verification of the variants of the theory of the $\mu \rightarrow e$ decay. The authors used the tracks of low-energy positrons of 10 000 $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ decays (Ref 1). A table gives the values of a' (for the low-energy-part of the positron spectrum) for the energy intervals $0 - 0,2\varepsilon$; $0 - 0,3\varepsilon$; $0 - 0,4\varepsilon$, where $\varepsilon = E/E_{max}$ denotes the energy of the positrons in units of the maximum energy of their spectrum. The angular distribution of the positrons taken into account in the above-mentioned table may be described adequately by the law $1 + a \cos \varphi$. The measured values of a' in the energy region < 20 MeV are an argument in favor of the positive sign of a'. The authors thank A. I. Alikhanov, Academician, who suggested this theme and discussed the results and also A. O. Vaysenberg for discussing some of the problems

Card 2/3

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SOV/[illegible]

The Energy Dependence of the Asymmetry Coefficient in the $\pi^+ \rightarrow \mu^+ \rightarrow e^+$ Decays for the Low-Energy Part of the Positron Spectrum

The authors also thank V. P. Dzhelepov who arranged the use of the π^+-beam of the synchrocyclotron of the Ob"yedinennyy institute yadernykh issledovaniy (United Institute of Nuclear Research) and A. P. Birzgal for carrying out the calculations. There are 1 figure, 1 table, and 10 references, 4 of which are Soviet.

SUBMITTED: May 21, 1958

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/120-59-4-7/50

AUTHORS: Pershin, I. I., Barmin, V. V., Kanavets, V. P., Morozov, B.V.

TITLE: Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

PERIODICAL: Pribory i tekhnika eksperimenta, 1959, Nr 4, pp 44-49 (USSR)

ABSTRACT: A detailed description is given of the application of the second difference method to the measurement of masses and energies of electrons from multiple scattering in the propane bubble chamber described in Ref 1 by the first of the present authors. The scattering constant for propane calculated from the Williams and Molier theories is compared with the experimental values obtained from measurements on μ-mesons and positrons. Assuming that the density of propane is 0.42 g/cm^3, the calculated scattering constant for $\beta = 0.66$ was found to be $K_1 = 4.35$ Mev.deg/$\sqrt{100\ \mu}$ (Williams)

$K_1 = 4.47$ Mev.deg/$\sqrt{100\ \mu}$ (Molier).

For $\beta = 1.00$ the values were found to be:

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/120-59-4-7/50

Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

$K_1 = 4.19$ Mev.deg/$\sqrt{100\ \mu}$ (Williams)

and $K_1 = 4.31$ Mev.deg/$\sqrt{100\ \mu}$ (Moller).

The experimental value for μ-mesons was found to be

$K\mu = 4.3 \pm 0.3$ Mev.deg/$\sqrt{100\ \mu}$ and for positrons

$K_e = 3.7 \pm 0.1$ Mev.deg/$\sqrt{100\ \mu}$.

The errors are standard statistical deviations. The optimum cell size is obtained in the usual way and the $\pi^{\pm}$ mass was found to be $290 \pm 21\ m_e$, using the above value of K_μ.

The second difference method has been used for determining the positron energies in $(\pi\mu e)^+$ decays obtained with the propane chamber. Measurements carried out over a long period of time have shown that the method may be used to measure

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/120-59-4-7/50

Application of the Second Difference Method to the Measurement of Multiple Scattering in a Propane Bubble Chamber

positron energies in the range 5-55 Mev. There are 4 figures and 17 references, of which 5 are Soviet (2 are translations from English), 1 is Swedish, 1 is German and the rest are English.

SUBMITTED: July 18, 1958.

Card 3/3

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

S/056/60/

24.6900

AUTHORS: Barmin, V. V., Kanavets, V. I., Morozov, B. V.

TITLE: Polarization of μ^+-Mesons of Cosmic Radiation

79

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 4(10), pp. 986-990

TEXT: The authors determined the degree of polarization of μ^+-mesons at sea level for three energy intervals. The apparatus used (copper target, copper-lead filter, scintillation counters, Geiger counters) is shown schematically in Fig. 1. The target was under a solenoid by means of which a horizontal magnetic field H = 30 gauss could be produced. Fig. 2 shows the block diagram of the electronics. In the first two series of experiments in which the average momenta of the muons were 0.45 and 0.[illegible] Bev/c, the ratio R of the number of positron decays with and without magnetic field was measured. In a third series, the degrees of polarization of cosmic muons with momenta 0.45 and 1.7 Bev were inter-compared. The authors obtained the following results.

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84396

Polarization of μ^+-Mesons of [illegible] Radiation

S/056/60 [illegible]
B004/B07[illegible]

momentum [Bev/c]	0.4[illegible]	0.9	[illegible]
number of recorded decays	4174	4022	5882
degree of polarization	0.23±0.10	0.37±0.11	0.31±0.10

The authors mention a paper by B. A. Dolgoshein, B. I. Luchkov, and V. I. Ushakov (Ref. 7). They thank Academician A. I. Alikhanov for his interest in the work, G. P. Yeliseyev for help and discussions, and B. V. Geshkenbeyn for discussions on problems concerning calculations. There are 2 figures and 11 references: 4 Soviet, 3 US, 1 British, 1 Dutch, and 2 Italian.

SUBMITTED: May 23, 1960

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.

Limit values of the amplitude of $\pi^{\pm}$ p-scattering. Zhur.eksp.i teor.fiz. 41 no.1:146-153 Jl '61. (MIRA 14:7)

1. Institut teoreticheskoy i eksperimental'noy fiziki AN SSSR.
(Mesons—Scattering)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

S/120/62/000/006/027/029
E192/E382

AUTHORS: Kanavets, V.P. and Sorozov, B.V.

TITLE: Output stage of the photomultiplier

PERIODICAL: Pribory i tekhnika eksperimenta, no. 6, 1962, 129

TEXT: The circuit described (see the figure) is designed for amplification of nc pulses derived from the photomultipliers, type ФЭУ-33 (FEU-33) and ФЭУ-[illegible]. The circuit is an amplifier based on a secondary-emission tube connected as a grounded-grid system. This is convenient for amplification of negative pulses. The gain of a stage (as shown in the figure) is 3 for the anode circuit and 2.5 for the dynode. The gain is linear for output amplitudes up to 1[illegible] V at the anode and 7 V at the dynode. For stronger input pulses the amplifier becomes nonlinear and the output pulses are limited to 1[illegible] V at the anode and 8 V at the dynode. The input impedance of the stage is [illegible] + 15 pF. The input capacitance can be reduced to 9 pF by disconnecting the heater for 0.1 - 0.2 sec; in this case, the bandwidth of the amplifier is 300 Mc/s.

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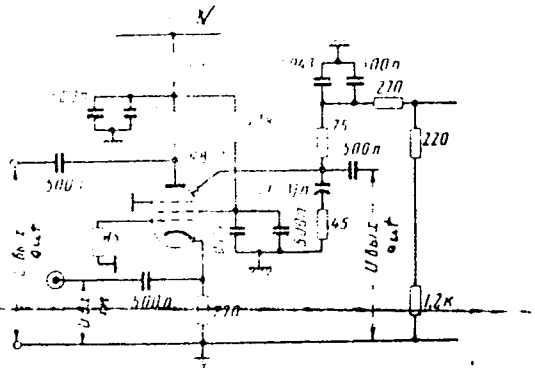
"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

S/120/62/000/006/027/029
E192/E382

Output stage ....

SUBMITTED: February [illegible]

Figure:



Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

ACCESSION NR: AR4020693 S/0275/64/000/001/A040/A040

SOURCE: RZh. Elektronika i yeye primeneniye, Abs. 1A194

AUTHORS: Kanavets, V. P.; Morozov, B. V.

TITLE: Photomultiplier output stage

CITED SOURCE: Tr. 5-y Nauchno-tekhn. i konferentsii po yadern. radioelektronike. T. 3. M., Gosatomizdat, 1963, 136-137

TOPIC TAGS: photomultiplier, photomultiplier output stage, pulsed photomultiplier output, secondary emission tube, coincidence circuit, high resolution coincidence circuit

TRANSLATION: A circuit is described for the amplification of the output pulses of FEU-36 time-duration photomultipliers. The circuit is built around a secondary-emission tube. The circuit parameters are: input resistance 75 ohms, anode and emitter circuit load resis-

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

ACCESSION NR: AR4020693

tance 75 ohms, amplification factor 3 in the anode circuit and 2.5 in the emitter circuit, signal linearity to 10 V in anode circuit and to 7 V in the emitter circuit, input capacitance of stage 15 pF and with the heater disconnected 9 pF (corresponding to a bandwidth of 300 Mc). The circuit can be used to improve the time characteristics of high-resolution coincidence circuits. V. P.

DATE ACQ: 03Mar64 SUB CODE: PH ENCL: 00

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.

Comparison of elastic πp- and pp-scattering based on a model with three Regge poles. Zhur. eksp. i teor. fiz. 45 no.3:679-683 S '63. (MIRA 16:10)

1. Institut teoreticheskoy i eksperimental'noy fiziki.
(Protons--Scattering) (Nuclear models)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.; SHAFRANOV, M.D.

Polarization in pp-scattering at an energy of 8.5 Bev. Zhur. eksp. i teor. fiz. 45 no.4:1272-1275 O '63. (MIRA 16:11)

1. Institut teoreticheskoy i eksperimental'noy fiziki i Ob"yedinennyy institut yadernykh issledovaniy.

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 41013-65 EWT(m)/T/EWA(m)-2 S/0367/65/001/001/0096/0102

ACCESSION NR: AP5007710

26
11
B
14

AUTHOR: Kanavets, V. P.; Levintov, I. I.; Morozov, B. V.

TITLE: Polarization during elastic proton-proton high energy scattering

SOURCE: Yadernaya fizika, v. 1, no. 1, 1965, 96-102

TOPIC TAGS: scattered proton polarization, high energy scattering, polarization energy dependence, proton proton scattering

ABSTRACT: Until recently, the data on elastic p-p scattering above 1.75 GeV dealt mainly with total and differential cross sections averaged over various spin states. New data presented in the present paper, however, required a more thorough analysis. Namely, the polarization measurements at the initial proton energies of 4.9 GeV and 8.5 GeV and the square of momentum transfer $|t| \simeq 0.3$ GeV^2 show that the magnitude of the polarization drops as the proton energy increases. An analysis of the experimental data shows that out of the two possible explanations of this observed effect, namely, a decrease in the modulus of the spin flip amplitude or a decrease in the phase difference between the spin-flip and non-spin-flip amplitudes, the second is the more probable one. Starting from the gen-

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L 41013-65

ACCESSION NR: AP5007710

eral two-nucleon potential, an approximate formula is obtained for the polarization in p-p scattering at high energies. The experimental setup is briefly described. "The authors thank A. I. Alikhanov for his interest in the work and useful discussions, V. I. Veksler for permission to use the synchrotron of the OIYaI, Ya. A. Smorodinskiy for useful discussions, I. V. Chuvilo who contributed much to the success of the investigation, M. D. Shafranov, N. A. Nikiforov, I. I. Pershin, Ye. G. Savinov, V. V. Pavlov, N. I. Potapov, V. A. Sakharov, A. A. Safonov and B. N. Fedin for their help during various stages of the work, and the personnel of the proton synchrotron of the OIYaI who made the work with the beam possible." Orig. art. has: 13 formulas, 6 figures and 1 table.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki GKAE (Institute of Theoretical and Experimental Physics, GKAE)

SUBMITTED: 29Jun64 ENCL: 00 SUB CODE: NP

NO REF SOV: 005 OTHER: 011

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

KANAVETS, V.P.; LEVINTOV, I.I.; MOROZOV, B.V.; NIKIFOROV, N.A.

Measurements of the energy dependence of the differential cross section of elastic np-scattering at energies of 3 ÷ 9.5 Bev. IAd. fiz. 1 no.1: 130-133 Ja '65. (MIRA 18:7)

1. Institut teoreticheskoy i eksperimental'noy fiziki Gosudarstvennogo komiteta po ispol'zovaniyu atomnoy energii SSSR.

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 41600-65 EWT(m)/T/EWA(m)-2 S/0367/65/001/001/0130/0133 21 19 B

ACCESSION NR: AP5007714

AUTHOR: Kanavets, V.P.; Levintov, I.I.; Morozov, B.V.; Nikiforov, N.A.

TITLE: Measurement of the differential cross section energy dependence for elastic pp-scattering in the 3-9.5 GeV energy region

SOURCE: Yadernaya fizika, v. 1, no. 1, 1965, 130-133

TOPIC TAGS: differential pp cross section, cross section energy dependence, pp elastic scattering, high energy pp scattering, proton scattering

ABSTRACT: The results of measurements of the relative value of the pp elastic scattering differential cross section at the energies of 3-9.5 GeV for fixed momentum transfers $|t|$ = 0.108; 0.178; 0.258; 0.337 $(GeV/c)^2$ are presented in Fig. 1 of the Enclosure together with the results of other researchers. The measurements were performed on the internal beam of the accelerator; the proton beam was monitored with the aid of a miniature ionization chamber. Considerable narrowing of the elastic pp-scattering diffraction cone is observed at energies between 3 and 6 GeV. "The authors thank A. I. Alikhanov for numerous useful discussions, V. I. Veksler for his interest, A. A. Zaytsev for the construction of the target with the ionization chamber, I.V. Chuvio who contributed substantially

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

L 41600-65

ACCESSION NR: AP5007714

to the progress of the study and the personnel of the proton synchrotron of IOYaI who made the work with the beam possible." Orig. art. has: 4 figures.

ASSOCIATION: Institut teoreticheskoy i eksperimental'noy fiziki GKAE (Institute of Theoretical and Experimental Physics, GKAE)

SUBMITTED: 20Jul64 ENCL: 02 SUB CODE: NP

NO REF SOV: 001 OTHER: 005

Card 2/4

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, B. Ye.; GUBA, I.P.

Potentials for impregnating ties. Put' i put. khoz. no.9:20-23 S '58. (MIRA 11:9)

1. Glavnyy inzh. Novomoskovskogo shpalopropitochnogo zavoda (for Morozov). 2. Nachal'nik otdela tekhnicheskogo kontrolya Novomoskovskogo shpalopropitochnogo zavoda (for Guba).
(Novomoskovsk--Railroads--Ties)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, D., arkhitektor

City-planning and economic characteristics of some series of standard designs now in force. Zhil. stroi. no.10:13-14 '65. (MIRA 18:11)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

LAVROV, M.I.; NUZHIN, M.T., prof., otv.red.; MARKOV, M.V , prof., red.; DUBYAGO, A.D., prof., red.; ARBUZOV, A.Ye., akademik, red.; NORDEN, A.P., prof., red.; PIGAREV, V.I., prof., red.; TIKHVINSKAYA, Ye.I., prof., red.; BARYSHNIKOV, V.G., dotsent red.; KOLESNIKOVA, Ye. A., dotsent, red.; KOLOBOV, N.V., starshiy prepodavatel', red., MOROZOV, D.G., dotsent, red.;

[Some statistical regularities of variable stars and their physical interpretation]. Nekotorye statisticheskie zakonomerr ti u zatmennykh peremennykh zvezd i ikh fizicheskoe istolkovanie. Kazan', 1955. 63 p. (Kazan. Universitet. Astronomicheskaia observatoriia. Biulleten', no. 31) (MIRA 15:10)

1. Rektor Kazanskogo ordena Trudovogo Krasnogo Znameni gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina (for Nuzhin). 2. Prorektor po nauchnoy rabote Kazanskogo ordena Trudovogo Krasnogo Znameni gosudarstvennogo universiteta im. V.I.Ul'yanova-Lenina (for Markov).

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, G.V.

[illegible]

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, G.V., red.; KISELEV, A.S., red.

[Forensic psychiatry. Sudebnaia psikhiatriia. Moskva, Meditsina, 1965. 422 p. (MIRA 18:9)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, D. I.

USSR/ Engineering - Turbine disks and blades

Card 1/1 : Pub. 128 - 4/31

Authors : Morozov, D. I.

Title : The calculation of the disk and blades of radial turbines

Periodical : Vest. mash. 10, 21 - 26, Oct 54

Abstract : Methods for calculating physical characteristics of turbine disks and blades are presented, and formulas are given to determine the deformation, stress and radial displacement of the above mentioned components. Three references: 2 USSR (1935 - 1947). Graphs; diagrams; drawing.

Institution : ....

Submitted : ....

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/124-59-1-468

Translation from: Referativnyy zhurnal Mekhanika, 1959, Nr 1, p 67 (USSR)

AUTHOR: Morozov, D.I.

TITLE: The Final Losses in a Grating of Active Profiles

PERIODICAL: Tr. Khar'kovsk politekhn. in-ta, 1957, Vol 24, pp 39-50

ABSTRACT: The study deals with calculation of the final losses on the end-partitions of an interblade channel of turboengines inside of which is flowing an incompressible liquid. A turbulent boundary layer is formed and uniform field of velocities at the channel entry sets in. The angle of taper of the stream φ in the layer at the end-partition is determined by means of a differential equation approximately obtained by N.M. Markov (the Calculation of Aerodynamical Characteristics of a Guide-Vane-Set of Turboengines. Moscow-Leningrad, Mashgiz - RZhMekh, 1956, Nr 9, 5854 K). For the integration of this equation a series of simplifying assumptions has been done, in particular, $\sin\varphi \approx \varphi$ and $\cos\varphi \approx 1$. Estimations of the discarded terms are not presented; also the results of the calculation of the angles φ are not given. For the calculation of the final losses it is assumed that these losses are proportional to the work of the friction force at the back of the

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The Final Losses in a Grating of Active Profiles

SOV/124-59-1-468

blade at the joint of two surfaces and that the friction-stress at the joint is proportional to the square of the maximum transverse velocity in the boundary layer at the back of the blade. The results of the experimental determination of the coefficient of secondary losses are given.

L.G. Naumova

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/96-58-5-21/27

AUTHOR: Morozov, D.I., Candidate of Technical Sciences

TITLE: Calculation of the Strength of the Impeller of a Centrifugal Compressor (K raschetu na 'rochnost' kolosa tsentrobezhnogo kompressora)

PERIODICAL: Teploenergetika, 1958, Nr 5, pp 80 - [illegible] (USSR)

ABSTRACT: [illegible] to develop an [illegible] impeller [illegible] blades milled [illegible] fixed [illegible] Figure [illegible] Figure 2 gives [illegible] the [illegible] are [illegible] without a central [illegible]

[illegible] illustrated in Figure [illegible] of the [illegible] making allowance for [illegible] forces in the [illegible] reduced stress on the disc close to the periphery of the wheel and to an increased stress near the centre. In the case quoted, if radial forces in the blades were disregarded, the stress at the rim was too high by 18% and the stress at the centre too low by 34%. This re-distribution of stress is easily understood [illegible] remembered that all the disc, except a very small [illegible] close

Card1/2

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/96-58-5-21/27

Calculation of the Strength of the Impeller of a Centrifugal Compressor

to the periphery, is in radial tension, as will be seen from Figure 2 and Eq.(2). The masses of the disc and of the blades that are put under tension by centrifugal forces cause radial tensile stresses in the elements of the blade and these, in their turn, stretch the rim of the wheel and compress the hub. There are 2 figures and 2 Soviet references.

1. Compressor rotors--Mechanical properties 2. Mathematics --Applications

Card 2/2

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, D.I., kand.tekhn.nauk

Optimum curving of blades of the last turbine stage of power limit. Izv. vys. ucheb. zav.; energ. no.7:69-76 Jl '58. (MIRA 11:10)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina.
(Steam turbines)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/147-59-3-9/20

8(5)

AUTHOR: Morozov, D.I., Candidate of Technical Sciences

TITLE: The Radial Equilibrium of a Flow in a Turbine Lattice (O radial'nom ravnovesii potoka v reshetke turbiny)

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy - Energetika, 1959, Nr 3, pp 65-72 (USSR)

ABSTRACT: Presently there is an interest in a more precise determination of the working medium flow pressure in the axial clearance between the nozzle and the working lattices (reshetka designates stationary and moving blades). Experimental investigations and theoretical calculations result in slightly different values for the pressure distribution in the clearance. Several analytical methods are known which provide an adequate accuracy for calculating the spatial flow in a circular blade lattice. These methods require the numerical solution of corresponding differential equation systems under given boundary conditions. They are very bulky and require a great volume of calculation work. Therefore, the development of a simpler calculation method,

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SOV/143-59-3-9/20

The Radial Equilibrium of a Flow in a Turbine Lattice

even if it is less accurate, will be of interest. The author presents a method for the approximated quantitative evaluation of the influence of the deformation of a flow - passing thru a circular turbine lattice - on the static pressure along the radius. The author compares the results obtained by his method with results of more accurate methods. He comes to the conclusion that the variation of the velocity profile at the lattice outlet will change the line of flow only insignificantly and only in the neighborhood of the lattice outlet, in accordance with the coefficient averaged by formula

$$\psi_c = \frac{1}{r_2 - r_1} \int_{r_1}^{r_2} \psi \, dr$$

under consideration of the curvature of the flow line. The flow lines are well represented by the approximated method, without considering the full radial equili-

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

SOV/143-59-3-9/20

The Radial Equilibrium of a Flow in a Turbine Lattice

brium equation. They coincide almost on the entire width of the lattice with those lines plotted by a more precise method, taking into consideration the complete radial equilibrium equation under identical boundary conditions. The divergence of the flow lines remains within the limits of 0 + 0.5%. There are 2 graphs, 1 diagram and 5 references, 4 of which are Soviet and 1 American.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V.I. Lenina (Khar'kov Polytechnic Institute imeni V.I. Lenin) Kafedra teplotekhniki (Chair of Heat Engineering)

SUBMITTED: November 28, 1958

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, D.I., kand.tekhn.nauk

Induced losses in turbine cascades. Energomashinostroenie 5 no.2:43-44 F '59. (MIRA 12:3)

(Turbines) (Fluid dynamics)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

32020
S/587/60/029/002/008/008
D262/D302

26.2120

AUTHOR: Morozov, D. I.

TITLE: Approximate calculation of higher critical numbers of revolutions of turbine rotors

SOURCE: Khar'kov. Politekhnicheskiy institut. Trudy. v. 29, no. 2, 1960. Parovyy i gazovyye turbiny, 199-213

TEXT: The method described consists in general of the application of Krylov's functions (Ref. 4: Lektsii o priblizhennykh vychisleniyakh (Lectures on Approximate Calculations), GITTL, 1950) in conjunction with the method of reducing the number of sections proposed by the author. The latter is based on the assumption that two identically supported and loaded rotors with equal spans, but a different number of sections of the same rigidity, will be approximately equivalent. Their correspondingly critical speeds will thus be approximately equal, if the potential energies of the corresponding sections of the second rotor, and the point of application of the unit force of the second rotor correspond to that of

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the first rotor. On this basis, equivalent moments of inertia for sections are deduced by comparing potential energies of actual and equivalent sections and an equivalent rotor with a reduced number of sections can be found. Introducing the Krylov functions

$$Y_1(x) = 0,5\left[\mathrm{ch}\ r\ x + \cos rx\right];\ Y_2(x) = 0,5 \cdot r^{-1}\left[\mathrm{sh}\ rx + \sin rx\right]$$

$$Y_3(x) = 0,5 \cdot r^{-2}\left[\mathrm{ch}\ rx - \cos r\ x\right];\ Y_4(x) = 0,5 \cdot r^{-3}\left[\mathrm{sh}\ rx - \sin rx\right]$$

ABCD - arbitrary constant (8)

to the differential equation of transverse vibrations given in the form $y^{IV}(x) - r^4 \cdot y(x) = 0$, the equation for a loaded section of the rotor is obtained: $Y6x) = A \cdot Y_1(x) + b\ Y_2(x) + C \cdot Y_3(x) + D\ Y_4(x)$ and the final frequency equation for the rotor shown in Fig. 1 is given by

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D262/D302

Approximate calculation of ...

$$\zeta_0(\omega) = \left[\varphi_3 - \frac{\varphi_1 \varphi_6}{\varphi_2}\right] \cdot \left[\psi_6 - \frac{\psi_1 \psi_6}{\psi_2}\right] + \frac{t J_2}{s J_3}\left[\varphi_3 - \frac{\varphi_1 \varphi_6}{\varphi_2}\right] \cdot \left[\psi_4 - \frac{\psi_3 \psi_6}{\psi_2}\right] = 0. \quad (23)$$

from which all critical speeds can be determined graphically. Two-rotor and three-rotor systems are analyzed, the final frequency equations deduced and the results shown in form of graphs and compared with the results obtained by Prohl's method. It is concluded that this approximate method is quite accurate and errors for the first and second critical speeds do not exceed 1 - 2%, but increase slightly afterwards (9% for the third critical speed). There are 8 figures and 6 references: 5 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows:

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D262/D302

Approximate calculation of ...

M. A. Prohl, Journ. of Applied Mechanics, v. 12, 1945.

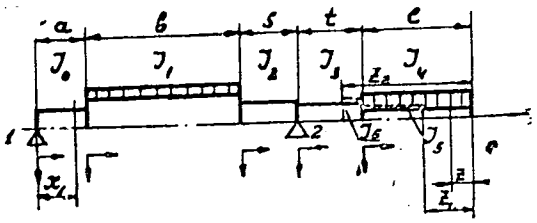

Fig. 1

Bracket type rotor

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MOROZOV, D.I.

Designing long blades for maximum capacity steam turbines. (MIRA 14:10)
Trudy KhPI 29 no.2:111-115 '60.
(Steam turbines--Design and construction)

APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

29261
S/143/61/000/009/002/008
D224/D305

26.2120

AUTHOR: Morozov, D. I., Candidate of Technical Sciences

TITLE: Energy losses with leakage in a rimless turbine stage

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Energetika, no. 9, 1961, 49-54

TEXT: The purpose of this paper is to state problems connected with the study of energy losses in a rimless turbine stage using expressions for determining circulation velocities and efficiency derived by the author from previous articles. The notation used is: $S = \frac{\delta}{l}$ - radial relative gap; l, l_1 - lengths of directing and working blades; x - coordinate with the origin at the end of radius (Fig. 1); Γ_0, Γ_1 - velocity circulations at the root and at the end of the blade respectively, at a given radial gap. Considering the circulation at the end of the blade as unknown, the differential equation for the distribution of the circulation is

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$$\frac{d\Gamma}{dx} = A\left[\frac{1}{x} - \frac{1}{2\ 1 - x}\right] \qquad (1)$$

After integration and after determining the constant A from the boundary condition at the root: $\Gamma|_{x=1} = \Gamma_0$, the circulation is expressed as a function of relative distance from the root of the blade -

$$\frac{\Gamma}{\Gamma_0} = \frac{1 - \frac{\Gamma_1}{\Gamma_0}}{\ln[s(2-s)]} \ln \frac{s(2-s)}{x_1(2-x_1)} + \frac{\Gamma_1}{\Gamma_0} = 1 - \left[1 - \frac{\Gamma_1}{\Gamma_0}\right] \frac{\ln[x_1(2-x_1)]}{\ln[s(2-s)]} \qquad (4)$$

It was found experimentally that the dependence of $\frac{\Gamma}{\Gamma_0}$ against radial gap S was linear. In order that the blade curvature satisfy

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S/143/61/000/003/002/006
D224/D305

Energy losses with leakage ...

the condition of constant circulation at low Mach numbers the consumption of liquid per unit radius length must be proportional to radius magnitude. The ratio of efficiency at a given gap and zero reaction to efficiency at zero gap is

$$\frac{\eta}{\eta_0} = \frac{\Gamma_0}{\Gamma_{00}\lambda}\left\{[\lambda+1][1-s]+s^2-1\right\} - \frac{2\Gamma_0\left[1-\frac{\Gamma_1}{\Gamma_0}\right]}{\Gamma_{00}\lambda\ln[s(2-s)]}\left\{-\frac{3}{2}-\frac{\lambda+1}{2}s(\ln s-1)+\right.$$

$$+\left(\frac{\lambda+1}{2}-2\right)(2-s)\left[\ln(2-s)-1\right]+\frac{(2-s)^2}{2}\left[\ln(2-s)-\frac{1}{2}\right]+$$

$$\left.+\frac{s^2}{2}\left[\ln s-\frac{1}{2}\right]\right\} \qquad (6)$$

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29261
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D224/D305

Energy losses with leakage ...

It was found experimentally, for the gaps 0 to 0.16, that

$$\frac{\Gamma_1}{\Gamma_0} = 1 - \frac{s'}{0,36} \qquad (9)$$

The author derived that for small gaps η/η_0 is

$$\frac{\eta}{\eta_0} = 1 - ks\,\frac{\lambda + 1}{\lambda} \qquad (10)$$

where k is the coefficient of decrease of circulation, and

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

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Energy losses with leakage ...

$$\frac{\eta}{\eta_0} = \frac{\Gamma_0}{\Gamma_{00}} \left[1 - ks \frac{\lambda + 1}{\lambda} \right] \qquad (11)$$

is an analogous expression for larger gaps. The problems stated by the author are: 1) An experimental study of the pressure distribution along the contour of the cross-section of the drained stationary turbine stages taking into account a radial gap. 2) Theoretical solution of the problem of the structure of the flow in the inter-stage space caused by the leak in both cases of a flat and of an axially symmetrical flow. 3) An experimental investigation of the degree of reaction near the inlet edges of the working blade, to be compared with theoretical results. 4) Determining the optimal shape of the last peripheral element of the working blade, and creating an acute angle between the peripheral face and lateral surface of the blade. 5) Increasing the chord of the profile of the working blade in order to achieve overlapping of the neigh-

Card 5/6

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29261
S/143/61/000/009/012/006
D224/D305

Energy losses with leakage ...

boring blades. There are 3 figures, 1 table and 6 Soviet-bloc references.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut imeni V. I. Lenina (Khar'kov Politechnic Institute im. V. I. Lenin)

SUBMITTED: July 14, 1960

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APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5"

"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, D.I., kand.tekh.nauk

Overlapping and loss of power in a turbine stage. Teploenergetika 8 no.8:12-17 Ag '61. (MIRA 14:10)

1. Khar'kovskiy politekhnicheskiy institut.
(Turbines)

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MOROZOV, D.I., kand.tekhn.nauk

Axial gap and flow structure in a banded turbine stage. Izv. vys. ucheb. zav.; energ. 5 no.3:49-52 Mr '62. (MIRA 15:4)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina. Predstavlena kafedroy teplotekhniki.
(Turbines)

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S/114/62/000/007/003/003
E194/E455

AUTHOR: Morozov, D.I., Candidate of Technical Sciences

TITLE: The degree of reaction and the energy loss in a turbine stage

PERIODICAL: Energomashinostroyeniye, no.7, 1962, 26-28

TEXT: The considerable change in the degree of reaction over the radius, even for comparatively large values of the ratio of mean diameter to blade length, has impelled a number of investigators to study the influence of the reaction of steam turbine impulse stage on the energy loss, in an attempt to find an optimum degree of reaction. The work has mainly been done on model turbines. The improvement is expected for two reasons. A turbine stage with 50% reaction has lower profile losses than an impulse stage even when the profile losses in the guide vanes and runner separately are the same. Also there is a relationship between the loss and the angle through which the flow is turned in the blade. However, data in the Atlas of new blade profiles

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produced by TsKTI im. Polzunova and elsewhere indicates that the profile losses of guide vanes range from 2 to 3% and for runner blades from 3.5 to 4.5% and do not depend upon the angle through which the flow is turned. That is, the second of the two expectations is not valid. Accordingly, calculations were made of the profile losses in a stage at the mean radius as function of the degree of reaction. This was done by altering the discharge angle of flow from the runner blades with constant angle of discharge from the guide vanes. Calculations were made for a profile and discharge stage losses over the practically important range of reactions of 0.1 to 0.4 for two variants of a guide vane profile loss of 0.025 and 0.075. The calculation was made for low values of Mach number corresponding to a steam turbine with a large number of stages. Changes in the profile and discharge losses of the stages with and without leakage, plotted as functions of reaction, show that: (1) When the reaction is increased from 0.1 to 0.4, even when there are no leaks present, the increase in efficiency of an impulse stage is very small, about 0.4%. With even quite small leakage the increase in efficiency is practically

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zero. (2) It is very difficult to prevent small leaks; therefore, with modern blade profiles, to increase the efficiency of an impulse stage, the degree of reaction at the mean radius should be the least possible necessary to ensure positive reaction at the root. This is because the reduction in leakage losses achieved by reduction of reaction in existing steam turbines with comparatively large clearances is greater than the increase in profile losses of the stage. These conclusions relate to unstressed stages of steam turbines in which the discharge losses can be reduced to a minimum. For the later stages there should be a [illegible] which corresponds to minimum total losses allowing for discharge velocity loss. There are 2 figures and 1 table.

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MOROZOV, D.I., kand.tekhn.nauk

Energy losses due to leakage in a bandless turbine stage.
Energomashinostroenie 9 no.9:14-18 S '63. (MIRA 16:10)

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

MOROZOV, O.I., kand.tekhn.nauk; SHTERZLIN, V.M., inzh.

Results of the improvement of the exhaust section of a gas turbine. Teploenergetika 11 no. 1:57-59 Ja '64.
(MIRA 17:4)

1. Khar'kovskiy politekhnicheskiy institut im. V.I.Lenina.

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MOROZOV, D.I., kand. tekhn. nauk

Negative degree of reactance in a turbine stage. Teploenergetika 11 no.8: 16-18 Ag '64. (MIRA 18:7)

1. Khar'kovskiy politekhnicheskiy institut.

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L 35037-65

ACCESSION NR: AP5002232 S/0143/64/000/011/0066/0071

AUTHOR: Morozov, D. I. (Candidate of technical sciences)

TITLE: Radial clearance and the stream structure in a bandless turbine stage

SOURCE: IVUZ, Energetika, no. 11, 1964, 66-71

TOPIC TAGS: bandless turbine, turbine stream

ABSTRACT: An axisymmetrical potential stationary leakage flow of non-compressible liquid in the interdisk space of a turbine stage is considered; this flow may be superimposed on the constant-circulation-twisted principal flow. A specified pressure drop occurs at the rotating-blade row; beyond the row, the liquid flows between long cylindrical surfaces. The structure of the flow core outside the radial clearance is studied, with a specified rate-of-flow in the clearance and in the row. This problem is theoretically solved by setting up and solving the Euler equation of motion, a continuity equation, and formulas for the

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ACCESSION NR: AP5002232

vortex components. Formulas for flow velocities are evolved. The theoretical results have been verified by experimental data* obtained from a turbine stage with a relative radial clearance $\delta/l = 0.0093$ and $\lambda = 5.15$. Orig. art. has: 4 figures and 29 formulas.

*obtained by Associate Professor M. Ye. Levina.

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut im. V. I. Lenina (Khar'kov Polytechnic Institute)

SUBMITTED: 26Dec63 ENCL: 00 SUB CODE: PR

NO REF SOV: 005 OTHER: 000

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ACCESSION NR: AP5013271 UR/0114/65/000/005/0035/0037
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B

AUTHOR: Morozov, D. I. (Candidate of technical sciences)

TITLE: Improving the efficiency of turbine exhaust ducts

SOURCE: Energomashinostroyeniye, no. 5, 1965, 35-37

TOPIC TAGS: gas turbine, exhaust duct, gas turbine efficiency
23

ABSTRACT: Some design considerations re the exhaust duct and its matching to the diffuser of a gas turbine are reported. With a specified scroll exhaust area, it is desirable to extend the radial size of the scroll at the expense of its axial size because that makes the velocity field at the diffuser outlet closer to the radial direction with axial symmetry. Estimated velocity profiles between the plates for an involute shaped scroll are given. Optimal duct expansion ratios for conventional and involute scrolls are found, and the increase in the duct pressure recovery for the involute scroll is estimated. The recommendations for enhancing the exhaust duct efficiency are given, however, with the qualification that they need an "experimental verification." Orig. art. has: 1 figure and 10 formulas.

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L 63012-65

ACCESSION NR: AP5013271

ASSOCIATION: Khar'kovskiy politekhnicheskiy institut im. V. I. Lenina (Khar'kov Polytechnic Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: PR

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"APPROVED FOR RELEASE: 07/12/2001 CIA-RDP86-00513R001135220002-5

ACC NR: AT7003563 (N) SOURCE CODE: UR/3240/66/000/001/0063/0067

AUTHOR: Horozov, D. I.

ORG: Khar'kov Polytechnic Institute (Khar'kovskiy politekhnicheskiy institut)

TITLE: Edge losses in turbine lattices

SOURCE: Khar'kov. Politekhnicheskiy institut. Energeticheskoye mashinostroyeniye, no. 1, 1966. Teploobmen i gazodinamika (Heat transfer and gas dynamics), 63-67

TOPIC TAGS: incompressible flow, viscous flow, turbine blade, aerodynamic boundary layer

ABSTRACT: The edge losses on a turbine blade are analyzed, universal expressions are derived for the losses, and the results are compared with experimental data. The flow is assumed to be attached at all times, and the governing flow equations are written by using the method of Borda-Carnot and Stepanov. These equations lead to the following universal expressions for blade losses:

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