"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSAKYAN, V.A.

DERSAKYAN, V.A., inzh.

Resistance welding of pins to transformer covers. Svar. proizv. no.10:33-34 O '57. (MIRA 11:1)
(Electric transformers--Welding)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSANSZKI, A.

21202
H/012/60/008/006/001/002
B122/B227

9.2540 (1020, 1138, 1159)
26.2351

AUTHORS: Drashev, M., Dersanski, A., and Betov, B., Members of the Institute (see Association)

TITLE: Electronically stabilized voltage source (0-2500 v, 40 ma) of high stability and low internal resistance

PERIODICAL: Mérés és Automatika, v. 8, no. 6, 1960, 179-182

TEXT: The direct-voltage source described is electronically stabilized, its output voltage is of high stability and adjustable within wide limits (0-2500 v), and it supplies a current of relatively high intensity (0-40 ma). The reference voltage source is also electronically stabilized. The stabilization factor is higher than 1000 within the entire working range, and the internal resistance of the voltage source is about 1 ohm. When the loading current has reached a certain value, the output voltage is automatically switched off. Voltage sources meeting these specifications are needed for research on the discharge characteristics of various gases, where the phenomena in question appear within very narrow voltage ranges. A series-regulated stabilizer is used for the required current

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intensity, and an auxiliary source is necessary for the reference voltage because of the wide range of output voltages. The auxiliary voltage source is also electronically stabilized because it has to supply a sufficiently high negative voltage for cutting off the series regulating tubes. Fig. 1 is a block diagram of the stabilized voltage source. Because of the limited load capacity of series tubes, the entire output range is divided into two voltage ranges: 0-1000 v and 1000-2500 v. In the first range, the voltage of the rectifier unit is about 2600 v, and in the second about 4600 v. From known formulas for series stabilizers regulated on the output side, the following values are computed: amplification of the regulating amplifier: 3360. This can be attained easily by a two-stage amplifier. Output resistor of the supply unit: 0.5 ohm. For the reference-voltage source, a stabilization factor of 10,000 is assumed. As the regulating amplifier of the voltage stabilizer is supplied from the reference voltage source, a low internal resistance of the latter is desirable. Therefore, a series-type circuit is expedient here, too. To avoid dependence on filament supply, part of the tubes of the regulating amplifier are heated by an electromagnetic stabilizer which also supplies the a-c input of the reference source. The necessary stabilization factor

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of the direct-voltage stabilizer part is calculated to be: 500. The amplification of the two-stage amplifier of the direct-voltage stabilizer of the reference source is about 1000. The output resistor of the reference source is rated at 1 ohm. The mains transformer supplies an effective voltage of 1800 or 3200 v according to the setting of the output voltage. The reference source is supplied by a transformer which receives pre-stabilized voltage from a mains transformer. A relay included in the stabilizer assures that, when the load reaches a certain value, negative voltage is switched on the tube grids, and the output voltage is reduced to zero. Characteristic curves are presented in Figs. 3-6. There are 6 figures.

ASSOCIATION: A Bulgár Tudományos Akadémia Fizikai Intezete (Physical Institute of the Bulgarian Academy of Sciences)

SUBMITTED: January 14, 1960

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

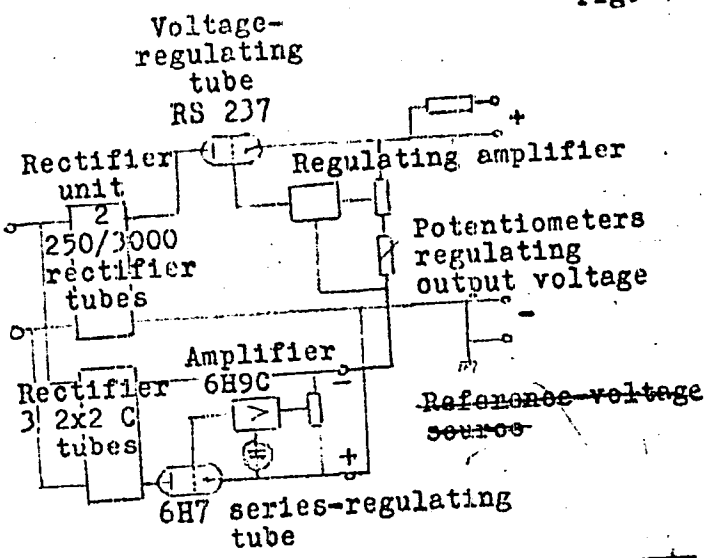
"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

21202

H/012/60/008/006/001/002

Electronically stabilized voltage ...

Fig. 1



~~Fig. 1~~

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Characteristic curves

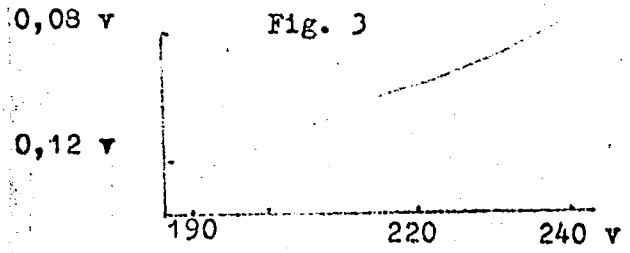


Fig. 3

Variation of output voltage versus mains voltage at 1500 v output

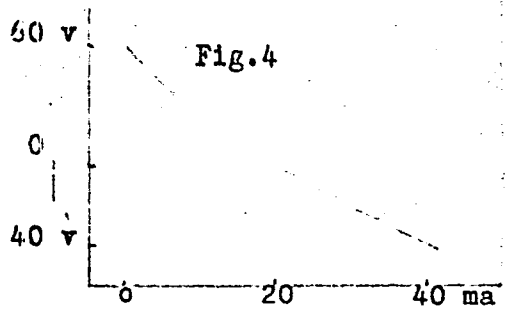


Fig.4

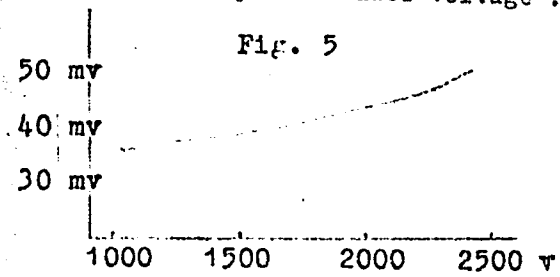
Variation of output voltage versus loading current

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

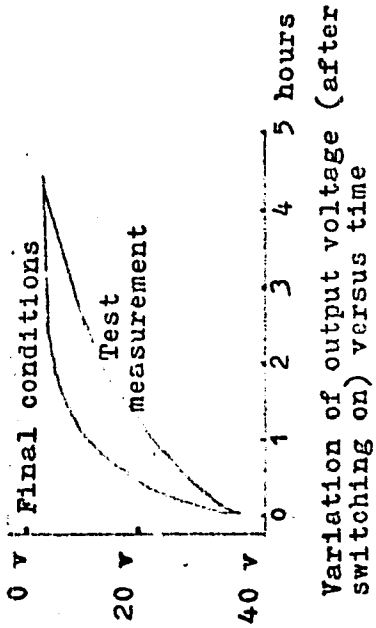
Electronically stabilized voltage ...

Fig. 5



Variation of ripple voltage versus output voltage (between 1000-2500 v)

21202
H/012/60/008/006/001/002
B122/B227



Variation of output voltage (after switching on) versus time

FIG. 6

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G. V. Cand. Technical Sci.

"Calculation of High-Frequency Current Supply Lines." Sub 28 Feb 47, Moscow Order of Lenin Power Engineering Inst imeni V. M. Molotov

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

SO: Sum No. 457, 18 Apr 55

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G. V.

"Representing the Skin Effect in System of Right-Angle Bus Bars," Zhur. Tekh. Fiz., 18, No 11, 1947

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

PA 22/49T16

DER-SHVARGS, G. V.

USSR/Electricity Oct 48
Electrical Equipment
Testing and Standardization

"Comment on D. B. Mondrus, S. M. Margolin, and V. M. Zil'berman's Article, 'Standardization of High-Frequency Equipment,'" G. V. Der-Shvarts, Cand Tech Sci, Moscow Power Eng Inst imeni Molotov, M. Ya. Smolyanskiy, Engr, Tsentropromelektropech MEP, 3/4 p

"Elektrichestvo" No 10

States views on subject (See 69T27).

22/49T16

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G. V.

"A 18/49T104

USSR/Physics
Currents, Electric - Measurements Nov 48
Bus Bars

"Representing the Skin Effect in System of Right-Angle Bus Bars," G. V. Der-Shvarts, Moscow Power Eng Inst imeni V. M. Molotov, 11 pp

"Zhur Tekh Fiz" Vol XVIII, No 11

Determines ratio of variable resistance due to frequency to static resistance at zero frequency for one of the right-angle bus bars in an endless charge packet on basis of distribution of current density in an ideal conductor. Submitted 7 Oct 47.

18/49T104

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G. V.

"Industrial Electric Furnaces," 1949

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

178T27

DERSHVARTS, G. V.

[redacted] Periodical Abstrs

USSR/Electricity - Furnaces Electric Induction Heating

Dec 50

"Dynamic Forces in the Melts of Induction Furnaces," G. V. Dershvarts, Cand Tech Sci, Moscow Power Eng Inst imeni Molotov

"Elektrichestvo" No 12, pp 33-36

Mixing forces in induction furnaces depend on the form of the fld. Existing formulas to det pressure due to the pinch effect are extended for the case of ac. Submitted 9 Jun 50.

178T27

[redacted]

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSHVARTS, G. V.

USSR/Electricity - Furnaces, Electric Oct 51
Modeling

"Electrodynamic Modeling of Electric Heating Equipments," G. V. Dershvarts, Cand Tech Sci, Docent M. Ya. Smelyanskiy, "Tsentropromelektropech'"

"Elektrichestvo" No 10, pp 47-51

Discusses the principles of electrodynamic modeling as applied to the design of elec heating equipments, particularly induction furnaces and current feeders. Submitted 23 Mar 51.

201T44

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G. V.

USSR/Physics - Electron Microscope FD-573

Card 1/1 Pub. 153-13/28

Author : Der-Shvarts, G. V.

Title : Influence exerted by the disruption of rotator symmetry of the focussing field upon the resolution of magnetic objectives in electron microscopes

Periodical : Zhur. tekh. fiz. 24, 859-870, May 1954

Abstract : Employs an idealized model of the magnetic objective to study the influence of small asymmetrical disturbances in the focussing field upon the resolving power. The numerical computations in the present work were conducted in the Moscow Power Engineering Institute imeni V. M. Molotov by computers under the direction of docent L. Z. Rumshiskiy

Institution :

Submitted : August 23, 1953

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSHVARTS, G. V.

Institute of Electronic Optics of the State Committee for Radio Electronics, Moscow.

"A Combination Intergration Device for an Exact Calculation of the Fields of an Electron-Optical Photographic System."

report presented at 4th Intl. Conference on Electron Microscopy, Berlin GFR, 10 - 17 Sep 1958.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHOR: Der-Shvarts, G.V. 109-3-2-14/26

TITLE: Network Integrators Having an Increased Accuracy for the Calculation of the Fields in Electron Optical systems (Setochnyye integratory povyshennoy tochnosti dlya rascheta poley elektronnoopticheskikh sistem)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.III, No.2, pp. 262-266 (USSR).

ABSTRACT: Calculation of two-dimensional symmetrical fields is based on the integration of the Laplace equation:

$$\Delta_1\varphi = \left[D_r^2 + D_z^2\right]\varphi = 0 \qquad (1).$$

This can accurately be approximated by:

$$\Delta_1\varphi = \frac{1}{6h^2} K\left[\varphi\right] - R_1 \qquad (3)$$

where the function $K[\varphi]$ is given by Eq.(2) and the term R_1 is expressed by Eq.(4). From the above, it is seen that the error term R_1 is proportional to the sixth power of

Card 1/3

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

of the grid-spacing parameter h . The operator expressed by Eq.(2) can therefore be used as the basis for the construction of an accurate analogue, suitable for the integration of Eq.(1). The problem of finding a suitably accurate operator for the integration of the Laplace equation in a cylindrical co-ordinate system, as expressed by:

$$\Delta_2\varphi = \left[D_r^2 + \frac{1}{r} D_r + D_z^2\right]\varphi \qquad (5)$$

presents certain difficulties. It is shown, however, that if φ is defined by Eq.(6), $\Delta_2\varphi$ can be expressed by Eq.(9) and its component $D_r\varphi$ by Eq.(10). Eq.(9) can be solved with respect to φ_o and it is shown that $\varphi_{0,n}$ is given by Eq.(12), where A(n) , B(n) and S(n) are defined by Eq.(13). Eq.(12) can be transformed into Eq.(14). It is shown that the operator of Eq.(2) can be represented by 8 resistances connected in a star (see Fig.3); the conductance of the diagonal elements of the star is four times lower than those

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

109-3-2-14/26

Network Integrators Having an Increased Accuracy for the Calculation of the Fields in Electron Optical Systems

of the vertical and horizontal elements. The construction of an integrating network for $\Delta_2\varphi$ is more difficult but it is possible to determine all the necessary parameters. If the network is to be sufficiently accurate, $\Delta_2\varphi = 0$ should be approximated by means of a finite difference operator having an error of the order h^6. $\Delta_2\varphi$ can then be expressed by Eq.(26), in which the various constants are determined by the equations on p. 266.
There are 3 figures and 3 Russian references.

SUBMITTED: May 10, 1957

AVAILABLE: Library of Congress

Card 3/3 1. Electrons-Optical system-Analysis

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHOR: Der-Shvarts, G.V. SOV/109-3-10-12/12

TITLE: A Certain Chromatic Aberration, Limiting the Resolution of a Reflex Electron Microscope (Ob odnoy khromaticheskoy aberratsii, ogranichivayushchey razresheniye otrazhatel'nogo elektronnogo mikroskopa)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol 3, Nr 10, pp 1315 - 1320 (USSR)

ABSTRACT: The work deals with the operation of the magnetic lens in a reflex electron microscope. The pole-piece of a magnetic objective is shown schematically in Figure 1. If the diaphragm, which limits the electron beam, is shifted with respect to the axis of symmetry, the picture is formed by means of deviated electrons. The vector potential in the vicinity of the optical axis can be described, for this case, by the following equations (Ref 2):

$$\left.\begin{aligned} A_X &= -\frac{B(Z)}{2} Y \cos\beta ; \\ A_Y &= \frac{B(Z)}{2} X \cos\beta - \frac{B(Z)}{2} Z \sin\beta ; \\ A_Z &= \frac{B(Z)}{2} Y \sin\beta - \frac{B'(Z)}{2} YZ \sin\beta , \end{aligned}\right\} \qquad (1)$$

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-3-10-12/12

A Certain Chromatic Aberration, Limiting the Resolution of a Reflex Electron Microscope

where $B(Z)$ is the distribution of the inductance along the axis of symmetry and β is the angle between the axis of symmetry and the optical axis. The equations of the trajectories in the co-ordinate system X_1, Y_1 Z are in the form of Eqs.(3), where X, Y and Z are fixed co-ordinates. In a normalised form, the equations are written as Eqs.(3a) and(3б). Their solutions can be written as Eqs. (4a) and (4б). Since a portion of the electrons loses some of its energy when interacting with the object, the trajectories of the electrons having velocities proportional to $\sqrt{\varphi^*}$ and $\sqrt{\varphi^* - \Delta\varphi}$ diverge. Projections of this divergence Δx and Δy can be determined from Eqs.(5a) and (5б); their solution is given by Eq.(6). The final solutions of Eqs.(3) and (6) are given by Eqs.(7), (8), (9) and (10). In particular, Eqs.(8) and (10) permit the determination of $\Delta x'$ and $\Delta y'$, which determine the scattering patterns in any required plane. Figures 3a and 3б show the scattering patterns for a centered beam which moves along the optical

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-3-10-12/12

A. Certain Chromatic Aberration, Limiting the Resolution of a Reflex Electron Microscope

axis z and emerges from the objects at an angle α. The three photographs given in Figure 4 illustrate the above aberrations; Figure 4a shows the microphotograph of a copper etched surface; Figure 46 illustrates the same sample for the case when the diaphragm was shifted by 0.04 mm, while Figure 4B corresponds to the diaphragm shift of 0.07 mm.
There are 4 figures and 5 references, 4 of which are Soviet and 1 German.

SUBMITTED: March 6, 1958

1. Electron microscopes--Operation

Card 3/3

USCOMM-DC-60305

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHORS: ~~Der-Shvarts, G.V.,~~ Candidate of Technical Sciences, Netrebenko, K.A., Engineer (Moscow) 105-58-5-12/28

TITLE: On the Problem of Calculating Plane-Parallel and Axially-Symmetric Electrostatic Fields (K voprosu o raschete ploskoparallel'nykh i osesimmetrichnykh elektrostaticheskikh poley)

PERIODICAL: Elektrichestvo, 1958, Nr 5, pp. 51-54 (USSR)

ABSTRACT: The possibility of a more rational numerical integration of the Laplace equation for a plane-parallel field (equation (1)) and a field with rotation symmetry (equation (2)) is investigated. The first chapter deals with end-difference operators. It is shown that the "eight-point" operators attain considerable importance. They have potentials of eight points located beside the point of observation. Good results are obtained by operator (11), which approximates the equation (1) with an error of h^6 (Ref 5). Also for fields with rotation symmetry, i.e. for the purpose of solving equation (2) eight-point operators can be obtained. One of them (12) has an error of h^6 (Ref 7). The second chapter deals with the structural scheme of a specialized computer, which consists of a

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

On the Problem of Calculating Plane-Parallel and Axially-Symmetric Electrostatic Fields 105-58-5-12/28

lattice integrator in an automatic measuring device, an arithmetical device with discrete effect, a control block, and a memory. The process of solving the system of linear algebraic equations of the form $K(\gamma) = 0$ on this specialized machine is described. The arithmetical device and the memory can be manufactured in series. The lattice-integrator manufactured in series is, however, not very serviceable. For the solution of plane-parallel problems it is advisable to use a uniform square lattice consisting of unequal not controllable resistances. For the calculation of fields with rotation symmetry the authors constructed a special lattice integrator, which is described in this paper. There are 3 figures, and 9 references, 8 of which are Soviet.

SUBMITTED: August 6, 1957

AVAILABLE: Library of Congress

Card 2/2 1. Electrostatic fields--Mathematical analysis 2. Mathematical computers--Theory 3. Operators (Mathematics)--Applications

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHORS: Der - Shvarts, G. V., Netrebenko, K. A., SOV/119-58-9-3/18
Engineers

TITLE: Automatic Digital Compensator With Binary and Decimal Scales (Tsifrovoy avtomaticheskiy kompensator s dvoichno-desyatichnoy shkaloy)

PERIODICAL: Priborostroyeniye, 1958, Nr 9, pp. 7-9 (USSR)

ABSTRACT: The device consists of a potentiometer with a discrete scale, a closing and change-over switch for the potentiometer, a zero indicator, and a rotating program selector controlling the performance of all the components of the device. As a potentiometer a series of resistances are used the values of which are correspondingly 10, 100, and 1000 times smaller for the successive decades, i.e., a binary-decimal code with weights 2,4,2,1 is used. A series of relays forms the change-over switch of the measuring voltage divider. Before the beginning of each measurement, all relays are connected, the measuring voltage being zero. The measuring process begins with an impulse generated in the winding of the first relay by the drum of the program selector, the impulse actuating the first relay. The voltage resulting there is compared with

Card 1/2

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

Automatic Digital Compensator With Binary and Decimal Scales SOV/115-58-9-5/18

that of a zero indicator (i.e., with the base voltage), and is so measured. In further consequence the drum contacts of the program selector connect the corresponding relays. The measurement is finished by measuring the sum voltage from the connected relays with an accuracy of 10^{-k} of the base voltage, k being the number of decades. The device can be used for both single and periodic measurements. It is supplied in 2 parts, the first part containing the automatic compensator, and the second the typewriter. The device has a 4-decade potentiometer controlled by telephone relays of the type RKM. By means of the zero indicator, which is fed by a direct-current voltage of about 10^{-5} V, an e.m.f. can be measured with an accuracy of 0.01 %. As a typewriter a standard model of the type SDU is used. The DAP-1 type drum of the program selector is connected to a running motor.
There are 5 figures and 8 references, 4 of which are Soviet.

Card 2/2

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DFR-SHVARTS, G. V. and KUSHNIR, Yu. M.

Institute of Electronic Optics of the State Committee for Radio-Electronics, Moscow.

"Concerning Some Problems of the Reflection Microscope."

report presented at 4th Intl. Conference on Electron Microscopy, Berlin GFR, 10 - 17 Sep 1958.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHOR: Der-Shvarts, G.V. SOV/109-59-4-2-27/27

TITLE: Concerning the Article: "Grid Integrators of Increased Accuracy for the Calculation of the Fields in Electron-Optical Systems" (Po povodu stat'i „Setochnyye integratory povyshennoy tochnosti dlya rascheta poley elektronno-opticheskikh sistem")

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 2, pp 347-348 (USSR)

ABSTRACT: The paper under the above title appeared in this journal in February 1958 pp 262-266. It was stated in the article that a series of finite-difference expressions exist which approximate the differential Laplace equation:

$$\Delta_2\varphi = D_r^2\varphi + r^{-1}D_r\varphi = 0 \qquad (1)$$

with an error proportional to the 6th power of the pitch h of the square grid. This can be expressed by Eq (2) where K_2 is given by Eq (3). The second term of Eq (2) represents the main portion of the error of the approximation. This error is dependent on the method of finding the coefficients a_k. The expressions

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-59-4-2-27/27

Concerning the Article: „Grid Integrators of Increased Accuracy for the Calculation of the Fields in Electron-Optical Systems„

for these coefficients given in the above paper lead to comparatively large errors when n is small. The error can be substantially reduced if the coefficients are expressed by Eq (4) - (9).

SUBMITTED: 11th November 1958

Card 2/2

USCOMM-DC-60,516

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-4-6-13/27

AUTHORS: Der-Shvarts, G.V. and Kushnir, Yu.M.

TITLE: On the Problem of the Lens Achromatisation and the Scaling Distortion Correction in Reflex Electron Microscopy (K voprosu ob akhromatizatsii linz i korrektsii masshtabnykh iskazheniy v otrazhatel'noy elektronnoy mikroskopii)

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 6, pp 1002 - 1007 (USSR)

ABSTRACT: The chromatic aberration in a reflex microscope is comparatively strong and reduces the resolving power of the system. However, if the irradiation angle θ_1 and the observation angle θ_2 are small, the resolving power can be increased. The reduction in the angle θ_2 leads to scaling distortions. The problem of eliminating or reducing the chromatic aberration (achromatisation) was investigated experimentally by employing a microscope, type EM-100. It was found that the chromatic aberration could be reduced by increasing the optical power of the

Card1/2

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-4-6-13/27

On the Problem of the Lens Achromatisation and the Scaling Distortion Correction in Reflex Electron Microscopy

lens (Ref 5). In practice this amounted to reducing the focal length of the lens. The resulting achromatisation increases the resolving power of the microscope to about 600 Å. The scaling distortion can also be partially eliminated by introducing a cylindrical lens into the column of the microscope. By this means, the scaling ratio of about 2 could be achieved for the observation angles of up to 8°. The microscope thus corrected could be successfully employed in metallographic investigations. There are 6 figures and 11 references, of which 3 are English, 2 French, 3 German and 3 Soviet.

SUBMITTED: March 17, 1958

Card 2/2

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/109-4-7-8/25

AUTHORS: Bykhovskaya, L.N. and Der-Shvarts, G.V.

TITLE: Some Electron-optical Characteristics of Single Electronic Filter-lenses

PERIODICAL: Radiotekhnika i elektronika, 1959, Vol 4, Nr 7, pp 1145 - 1152 + 2 plates (USSR)

ABSTRACT: The picture in an electron microscope is produced by the electrons which are elastically scattered in an object; the inelastically scattered electrons which lose a fraction of their velocity during the interaction with the object form a background which reduces the contrast of the picture and the resolution of the system. It is therefore to be expected that the elimination of the inelastically scattered electrons from the electron group which forms the picture will lead to an improvement in the resolution and an increase in the contrast (H. Börsch - Ref 2 and O. Rang - Ref 3). This can be done by using special electrostatic filter-lenses. The work described aimed at the investigation of such simple filter-lenses. In particular, the characteristics of the filters were studied as a function of their geometrical dimensions.

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SOV/109-4-7-8/25

Some Electron-optical Characteristics of Single Filter-lenses

The investigated lenses were used as the projectors in a magnetic-type microscope. The experiments were carried out on a special simple lens whose electrodes were axially displaced (Figure 1). The lens consisted of three electrodes. The upper electrode had a demountable diaphragm, having a diameter of the aperture of 0.2 to 0.1 mm and could be displaced during the operation. The supply system of the microscope was as shown in Figure 2. The potential difference between the cathode of the microscope and the middle electrode of the filter-lens was obtained from a dry battery by means of a potentiometer; the voltage at this electrode was about 55 to 50 kV. The experimental results are shown in Figures 3 and 4. The dependence of the transmission coefficient and the magnification of the filter-lens on the ratio $k = d/b$ is given in Figure 3. The lens had the following parameters: $m = 1$ mm; $n = 4$ mm; $h = 31$ mm and the potential of the cathode $U_K = 50$ kV (Figure 1). The dependence of the prameters of the filter on the spacing a

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between the upper and the middle electrodes is illustrated in Figure 4; the lens had $d = 2.5$ mm and $b = 1$ mm. The effect of the filter-lens on the pictures obtained with a microscope is illustrated in the photographs of Figures 5-8. The problem of determining the resolution of filter-lenses can be studied theoretically. For this purpose, the lens can be represented by the model shown in Figure 9. It is now necessary to solve the Laplace equation (Eq 1). The solution of this is sought under the following assumptions:

1) the potential in the space between the electrodes decreases linearly, and
2) the apertures in the outer electrodes are infinitely long.

The solutions of Eq (1) for the three regions shown in Figure 9 can be written as Eqs (2),(3) and (4), where α_n are the roots of $J_o(x) = 0$, $J_n(x)$ is the Bessel

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function of the first kind of the order n. The electron trajectories can be determined from Eq (5), where V is the acceleration potential and Φ is the potential of the lens. The effect of the extra-axial aberrations can be determined by integrating the equation system given by Eqs (7) (G.V. Der-Shvarts - Ref 13). On the basis of the experiments and the theory (which is sometimes at variance with the experiments) it was found that the absolute value of the transmission of the lens for h = const and $k = d/b$ = variable has a minimum. It was found that the aperture of the upper electrode (Figure 1) limits the field of vision of the lens. In fact, the field is comparatively small and makes it difficult to employ the filter-lenses in practice. It is possible to produce a filter-lens having a transmission value of 20 V at a potential of U_K = 50 kV which permits obtaining a resolution of about 70 Å when the objector magnification is 150. The calculations show that the filters produce large chromatic aberrations and can lead

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SOV/109-4-7-8/25

Some Electron-optical Characteristics of Single Filter-lenses

to a decrease in the resolution of the microscope if the magnification of the first optical stage is small. The chromatic aberrations increase considerably when the optical system is misaligned. The authors express their gratitude to Yu.M. Kushnir for his interest in this work. There are 9 figures and 13 references, of which 2 are English, 8 German and 3 Soviet.

SUBMITTED: March 17, 1958

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

SOV/48-23-4-16/21

AUTHORS: Ber-Shvarts, G. V., Netrebonko, K. A.

TITLE: A Computing Apparatus for the Calculation of Fields of Electron Optical Systems (Vychislitel'naya ustanovka dlya rascheta poley elektronnoopticheskikh sistem)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 4, pp 506-510 (USSR)

ABSTRACT: One of the basic problems in the construction of electronic systems is the calculation of electric and magnetic fields. Mention is made of a preparatory work (Ref 1) carried out by both the authors, in which they showed that these calculations may be carried out by means of computers. The problem is essentially that of finding solutions of the Laplace and Poisson equations. The authors, partly assisted by O. B. Belonozhko and V. N. Vzorov, have designed and built a computer, which is specially suitable for the solution of such problems (axially symmetrical field problems). The block diagram of the computer is then discussed. It consists of an integrating network, an automatic potentiometer, an arithmetical block, a block with magnetic tape for the recording of continuous solutions and the

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A Computing Apparatus for the Calculation of Fields of Electron Optical Systems SOV/48-23-1-16/21

printing block with automatic recorder which records the discrete results. Next, the integrator is more closely dealt with. It consists of 2500 current branchings which are arranged in a large rectangle in the scheme. The number of resistances is mentioned as being ~5000. The decadic voltage divider is then discussed. The whole apparatus is fed by a storage battery of 30 v. The computer consisting of a total of 40 units is shown in figures 4 and 5. The measurement and recording of the data obtained is fully automatic, as the automatic potentiometer governs both the automatic recorder and tape. A Russian accounting machine of the type SDU was originally used as an automatic recorder, and later on a German "Rheinmetall" (GsE). In conclusion, the authors consider the possibility of improving the automatic potentiometer in order to use the computer also for the solution of other problems pertaining to mathematical physics, especially for the solution of Laplace and Poisson equations. There are 5 figures and 6 references, 4 of which are Soviet.

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

AUTHORS: Der-Shvarts, G. V., Belen'kiy, S. A. SOV/48-23-6-11/28

TITLE: On the Problem of the Influence of a Chromatic Aberration of the Dis-adjustment Upon the Resolution of a Reflection-electron Microscope (K voprosu o vliyanii odnoy khromaticheskoy aberratsii deyustirovki na razresheniye otrazhatel'nogo elektronnogo mikroskopa)

PERIODICAL: Izvestiya Akademii nauk SSSR. Seriya fizicheskaya, 1959, Vol 23, Nr 6, pp 716-718 (USSR)

ABSTRACT: In the introduction, the reduction of chromatic aberration by diaphragms in the objective of electron microscopes is mentioned and the interest in the influence exercised by the geometric dimensions of the pole shoes of the objective upon the dis-adjusting-aberration is shown. When calculating the aberrations of the trajectories, four equations are given, which had been introduced in an earlier paper by Der-Shvarts (Ref 1). The magnetic potential between the pole shoes is then investigated and the formulas (6) and (7) are deduced. By differentiation of this equation the axial distribution of induction components is obtained. For different values of nonmagnetic clearance and of the left-hand channel, values of

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the axial distribution of induction are then calculated. Calculation of the figures of aberration is dealt with according to Gauss, and the results obtained are given by a table. For the purpose of calculating the dispersion from the data given by the table as well as of the quantity characterizing the dis-adjustment of the diaphragm two formulas (12) and (13) are given. The influence exercised by the constructional parameters of the pole shoes upon the enlargement is distinctly shown by the data given by the table. There are 2 figures, 1 table, and 3 Soviet references.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; RACHKOV, V.P.

Design of magnets for the excitation of lenses of magnetostatic electron microscopes. Izv.AN SSSR.Ser.fiz. 25 no.6:676-679 Je '61. (MIRA 14:6)

(Electron microscope)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

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D207/D304

24.8300

AUTHORS: Der-Shvarts, G.V., Kushnir, Yu.M. Rozenfel'd, L.B., Zaytsev, P.V., Bezlenkin, S.V., Trutneva, I.S., Belenkiy, S.A., Titov, L.A.

TITLE: Certain problems of reflex electron microscopy

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 8, 1961, 1358 - 1364

TEXT: This paper was presented at the 3rd All-Union Conference on electron microscopy, Leningrad, October 1960. The present article describes an electron reflex microscope based on the design by Ch. Fert, R. Marty, R. Saporte (Ref. 1: C. r. Acad. Sci. 1955, 240, 20, 1975) who have shown that by tilting the illumination system by 15 - 20° in a reflex microscope, a good image may be obtained with small deformation of the scale and a large useful image area. The main deficiency of such a system in an electron microscope is the chromatic aberration; the aberration can be reduced, by reduc-

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ing the diaphragm aperture of the objective which in turn reduces considerably the picture illumination. In the described microscope the increased illumination was obtained by designing a more effective electron gun and by utilizing a light intensifier. Since the definition of a reflex microscope is determined by the diaphragm of the objective, which means that in an electron microscope the efficiency of the electron gun is determined not by electron brightness but by the current density of the sample, several types of gun were investigated; it was found that triple electrode guns of special construction produce a much greater current density than the standard guns normally used in electron microscopes. The special feature of such a gun is the conical shape of the focussing electrode. The dependence of current density j at the cross-over point of the anode current was determined for electrode angles α of 60°, 90° and 120° with depth of penetration h of the tip of the cathode filament (filament dia. 0.12 mm) with respect to the cone apex, as a parameter for maximum current density at U = 60 kV. The temperature of the cathode was 2800°K. The optimum results obtained are

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shown. For an electrode with angle $\alpha = 120^{\circ}$, h = 0.5 mm; for $\alpha = 90^{\circ}$ and 60°, h = 1.5 mm. For comparison j = f(Ia) is also drawn for the normal electron gun YЭM-100 (UEM-100), in which the tip of the filament is 0.75 mm above the focussing electrode. It may be seen that for $\alpha = 120^{\circ}$ the current density is increased by approximately 4.6 times with a current of 250 μA and 7 times with a current of 500 μA. The electron gun is mounted in the illumination system of the microscope. The gun is introduced through a jacketed port and can be mechanically rotated through any angle from 0° to 22° measured on a vernier scale. The electron optical magnification of the microscope is x2500, resolution about 500 Å. The authors also undertook theoretical analysis of the influence on the finition of imperfect assembly and shape of magnet cores. Since the picture is formed by electrons undergoing considerable decelerations, the axial deformation of the magnet slots and errors in their axial positioning produce a constant magnetic field near the axis and perpendicular to it. Such a field has analyzing properties and may introduce chromatic aberration. The evaluation of such aberrations requires the determination of the corresponding pertur-

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

bation potentials, normally evaluated by Bertein's method. It may be shown, however, that this method does not determine the exact boundary conditions necessary for solving the problem of the Laplace equation for perturbation potentials. This problem may be solved exactly only when it is assumed that the perturbation is very small. The modified Mathieu functions may be then reduced to the sums of Bessel functions, whose terms are multiplied by the parameter of the Mathieu equation. In their analysis the authors concluded that there is no general method for evaluating the perturbation potentials and used the integral of an ordinary layer to determine them in the near axial region. The details of the analysis are not given. The poles used had the geometrical form with s/d ratio of 1.5 [Abstractor's note: Symbols d and s not defined]. The authors also investigated the filter lenses in an attempt to increase the resolution of the reflex microscope. In their analysis [Abstractor's note: Details not given] they used the mathematical model of single electrostatic lenses of W. Glaser and P. Schiske (Ref. 13: Optik, 1954, 11, 9, 422; 1954, 11, 10, 455; 1955, 12, 5, 233) and of R. Rüdenberg (Ref. 14: J. Franklin Inst. 1948, 246, 4,

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Certain problems of reflex ...

311, 246, 5, 377). The analysis showed [Abstractor's note: Details not given] that the resolution of the lens is basically limited by the fact that non-axial achromatic electrons are being focussed in different planes. With an energy spread of electrons of the order of 5-6 eV a background is, therefore formed in which the picture disappears. There are 10 figures, 5 Soviet-bloc and 9 non-Soviet-bloc references. The references to the 4 most recent English-language publications read as follows: M.E. Haine, P.A. Einstein, Brit. J. Appl. Phys 1952, 3, 2, 40; P.A. Sturrock, Philos. Trans. Roy Soc. London, A. 1951, 243, 368, 387; G.D. Archard, J. Scient. Instrum. 1953, 30, 10, 353; R. Rudenberg, J. Franklin Inst., 1948, 246, 311; 246, 5, 377.

SUBMITTED: February 7, 1961

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; KUSHNIR, Yu.M.; ROZENFEL'D, L.B.; ZAYTSEV, P.V.; BEZLEPKIN, S.V.

Modernizing the UEM-100 microscope. Izv.AN SSSR.Ser.fiz. 25 no.6:721-724 Je '61. (MIRA 14:6)
(Electron microscope)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

S/109/62/007/001/015/027
D246/D301

AUTHORS: Der-Shvarts, G.V., and Belen'kiy, S.A.

TITLE: Investigating the aberration of electronic lens filters

PERIODICAL: Radiotekhnika i elektronika, v. 7, no. 1, 1962, 126 - 132

TEXT: The aberrations of the so-called electrostatic lens-filter proposed by Börsch have been investigated so far by using inadequate methods. The authors use solutions of the equations of trajectory in two well established mathematical models for this purpose, assuming that the lens is used as a projecting lens of electron microscopes. Making assumptions about the expected working conditions of such a lens, they derive characteristic data concerning the aberrations of the lens, which are summarized in Table 1, where d - half-width of the axial potential distribution; r = 0 for the axis. Calculating the aberration for a point on the axis, the authors assumed U_v = 35 kV electron velocity and two different sets of condi-

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tions: losses through the object, $(\Delta U_v)_{max}$ = 4.3 V and $(\Delta U_v)_{max}$ = = 10 V and magnification M = 97.5 X and M = 104 X respectively. Th results are tabulated. The approximate radius of chromatic aberration of position for the cases are $(\delta_{cap})_{max}/M \sim 6900$ and 28,000 A respectively. For the second set of conditions the aberrations for off-axis points were also calculated along 2 trajectories. Results for geometrical and chromatic aberration are given in tables. The authors' conclusion is that chromatic aberrations of lens filters are quite large. The geometric aberrations for off-axis points are also too large. Hence, the use of lens filters in reflection microscopy lacks perspectives. They may be used in illumination microscopy as intermediate lenses, if losses in the object are small. There are 3 figures, 5 tables and 10 references: 5 Soviet-bloc and 5 non-Soviet-bloc. The reference to the English-language publication reads as follows: R. Rüdenberg, I. Franklin, Inst., 1948, 246, 322, 377.

SUBMITTED: June 19, 1961

Card 2/3

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

S/105/62/000/012/001/003
E140/E435

AUTHORS: Der-Shvarts, G.V., Trutneva, I.S. (Moscow)

TITLE: The design of electron-optical elements for electron-beam machining installations

PERIODICAL: Elektrichestvo, no.12, 1962, 34-38

TEXT: The authors refer to two publications by E.B.Bas (Optik, v.12, 1955, 71 Vacuum Science and Technology, Pergamon Press, v.2, 1950) concerning electron-beam welding. It is not the purpose of the present article to discuss the use of electron beams for dimensional machining or the detailed design of the electron-optical elements for forming the beams but rather to enable a rapid check of the suitability of a given system for the purpose. Estimates are given of the effects of chromatic aberration and third-order spherical aberration on the position and precision of the beam. Two numerical examples are worked to show how the required power supply stability can be determined and how different lens configurations may be compared. There are 3 figures and 2 tables.

SUBMITTED: February 17, 1962

Card 1/1

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; TRUTNEVA, I.S.

Potential of an immersion lense with elliptical electrodes. Radiotekh. i elektron. 7 no.8:1462-1464 Ag '62. (MIRA 15:8)
(Electron optics)

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; KULIKOV, Yu.V.

Contribution to the theory of tolerances in electron-optical devices. Radiotekh. i elektron. 7 no.12:2067-2071 D '62. (MIRA 15:11)

(Electron optics--Equipment and supplies)

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S/109/63/008/004/027/030

54

AUTHOR: Der-Shvarts, G. V.,

TITLE: Image distortion and astigmatism in electrostatic emission systems

PERIODICAL: Radiotekhnika i elektronika, v. 8, no. 4, 1963, 720-722

TEXT: The author explains that image distortion and astigmatism are the basic geometric abberations which limit the resolution of various electronic optical devices having symmetrical axes and purely electrostatic focussing. To introduce the necessary corrections, he divides the path of the electrons into main, meridional and sagittal trajectories, along which all electrons pass if they have the same initial speed component in the direction of the main trajectory. He then devises a system of differential equations, on the basis of Lorenz equations, after breaking down the potential around a given point of the main trajectory into a Taylor series. This method results in a very close similarity between values derived as a result of the numerical solution of differential equations and those obtained by means of an analytical solution. In the case cited, the value of y (displacement of the near trajectory from the main one, at the point of leaving the field) was as follows: y_n (established by numerical solution) = 0.1762 cm. y_a (obtained analytically) = 0.1761 cm.

SUBMITTED: April 20, 1962 (initially); September 22, 1962 (after revision)

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.; RASPLETIN, K.K.; SPEKTOR, F.U.; GUROVA, R.P.; POSTNIKOV, Ye.B.; OSIPOV, V.N.; PAVLOV, V.A.; POGUDINA, M.V.

Combined scanning electron microscope and X-ray microanalyzer with magnetic electron optics. Izv. AN SSSR. Ser. fiz. 27 no.9: 1166-1172 S '63. (MIRA 16:9)
(Electron microscope) (X-ray spectroscopy)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; RACHKOV, V.P.

Study of the distortion of the forms of electronograms originating in microdiffraction. Radiotekh. i elektron. 9 no.8:1476-1481 Ag '64. (MIRA 17:10)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

KUSHNIR, Yu.M.; FETISOV, D.V.; DER-SHVARTS, G.V.; POCHTAREV, B.I.; TOKAREV, P.D.; RASPLETIN, K.K.; GUROVA, R.P.; POSTNIKOV, Ye.B.

The REMP-1 scanning-type electronic microprobe instrument. Zav.lab. 30 no.12:1510-1512 '64. (MIRA 18:1)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

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L 45456-65 EWT(m)/T/EWP(t)/EWP(z)/EWP(b)/EWA(c) Pad LWP(c) JD/JW

ACCESSION NR: AP5007055 S/020/65/000/001/0189/0191

AUTHOR: Vasichev, B. N.; Der-Shvarts, G. V.; Fetisov, D. V.; Shirobok, V. K.

TITLE: Microanalyzer for thin specimens

SOURCE: Pribory i tekhnika eksperimenta, no. 1, 1965, 189-191

TOPIC TAGS: microanalyzer, structural analysis

ABSTRACT: An x-ray microanalyzer (MA) intended for structural analyses of microareas of thin (2000 Å) foils is described. The MA is built into a desk-type BS-242 electron microscope ("Tesla," Czechoslovakia) whose resolution is up to 30 Å and enlargement, 100–30,000; the picture can be observed on a 60x60-mm screen. The MA sensitivity can be evaluated on the basis of this data: with a 170-Å sprayed nickel film, a 1.5-μ probe diameter, 2×10^{-7}-amp probe current, and a 40-kv accelerating voltage, the intensity of the K-line of nickel was 23 pulse/min (quartz crystal with 1010). For a thick pure-Ni specimen, other things being equal, the counting rate was 780 ppm. Orig. art. has 3 figures.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

L 45456-65

ACCESSION NR: AP5007055

ASSOCIATION: none

SUBMITTED: 05Jun64 ENCL: 00 SUB CODE: IE, OP

NO REF SOV: 006 OTHER: 002

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; RACHKOV, V.P.

Some electron-optical features of two-slot lenses. Radiotekh. i elektron. 10 no.5:922-928 My '65. (MIRA 18:5)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

L 08093-67 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JD

ACC NR: AP6029900 SOURCE CODE: UR/0413/66/000/015/0063/0064

INVENTOR: Kushnir, Yu. M.; Rozenfel'd, L. B.; Der-Shvarts, G. V.; Kagan, N. B.

38
B

ORG: none

TITLE: Microscope of the ion emission type. Class 21, No. 184366

SOURCE: Izobret prom obraz tov zn, no. 15, 1966, 63-64

TOPIC TAGS: microscope, field emission microscope, ion emission

ABSTRACT: The proposed microscope of the ion emission type contains an axisymmetric electrostatic optical system, a diaphragm, a device for separating ions of specific mass from the ion beam, an ion collector, such as the first dynode of a secondary electron multiplier, an amplifier, and a recording unit (see Fig. 1). To increase microscope resolution and to make possible the observation of the distribution of various chemical elements on the surface of the sample, a scanning system, synchronized with the control unit and admitting through the diaphragm an enlarged ion image for every element, is used in the microscope. For the same purpose, the device which

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

L 08093-67

ACC NR: AP6029900

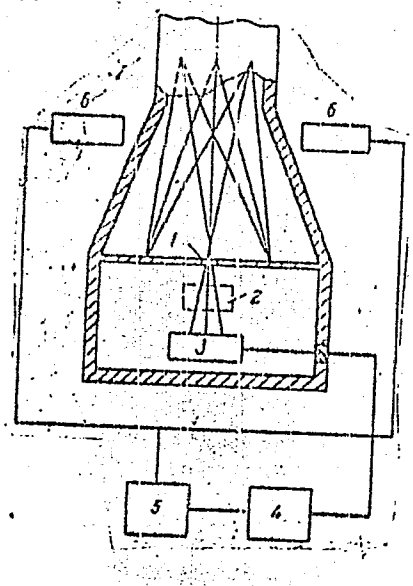

Fig. 1. Ion emission microscope

1 - Diaphragm; 2 - system for separating ions of specific cross from the ion beam; 3 - ion collector; 4 - amplifier; 5 - recording unit; 6 - scanning system.

separates the ions of specific mass from the ion beam is placed between the diaphragm and the ion collector. Orig. art. has: 1 figure. [JR]

SUB CODE: 20/ SUBM DATE: 25Sep64/

Card 2/2

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DER-SHVARTS, G.V.; MAKAROVA, I.S.

Calculation of spherical and axisymmetrical abberation of magnetic lenses. Radiotekh. i elektron. 11 no.1:89-93 Ja '66. (MIRA 19:1)

1. Submitted September 25, 1964.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

GOIA, I., prof.; FLORESCU, I., dr.; DERMLA, Z., dr.; PODUT, A., dr.

Considerations on the visceral findings and etiopathogenesis of Schoenlein-Henoch's disease. Med. intern., Bucur 13 no.1:25-32 Ja '61.

1. Lucrare efectuata in Clinica a II-a medicala, Cluj.

(PURPURA)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSI, Gyula.

Some standpoints concerning labor safeguard. Musz elet 15 no.7:7 Mr '60. (EEAI 9:7)

(Hungary--Industrial safety)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSI, Gyula

The situation of engineers. Masz elet 15 no.8:4 Ap '60. (EEAI 9:8)
(Hungary--Technology)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSI, Gyula

Wage revision for the workers of research institutes. Musz elet 15 no.20:16 S '60. (EEAI 10:1)
(Hungary--Research)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSI, Tamas, ujsagiro

Notes on Thalia's program. Munka 10 no.9:24 S '60.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSI, Tamas

Never again. Munka 11 no.10:23-24 O '61.

1. "Esti Hirlap" munkatarsa.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

Q

USSR / Farm Animals. Poultry.

Abs Jour : Ref Zhur - Biologiya, No 5, 1959, No. 21298

Author : Dergibashev, L.
Inst : Not given
Title : Downy Hens

Orig Pub : Nauka i peredov. opyt v s.-kh., 1958, No 4, 48

Abstract : Densely developed down feathers cover the entire body of the hens. The upper third of the neck is covered with filaceous feathers, and the lower part by feathers of a transitory filaceous to downy form. The full growth of down is reached after 30 - 40 days. It may be clipped. In 2 clippings per year, one hen produces 120 - 150 g of down. The down's hides are very sturdy. The skin of downy chickens is thicker and sturdier than in common chickens. Brown, black-red and pale-yellow feather colorings predominate. The live

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

85617

R/008/60/000/001/004/009
A125/A026

26.2120

AUTHOR: Derski, Vladimir, Warsaw

TITLE: On Some Problems of Thermoelasticity

PERIODICAL: Studii şi Cercetări de Mecanică Aplicată, 1960, No. 1, pp. 131-151

TEXT: The author presents the solutions of some problems of thermoelasticity in a nonsteady temperature condition. He gives first a brief historical review mentioning Duhamel (Ref. 1), Neumann (Ref. 2), M.T. Huber (Ref. 3), A. Leon (Ref. 4), R. Lorenz (Ref. 5), G. Eichelberg (Ref. 6), J.N. Goodier (Ref.7), E. Melan und H. Parkus (Ref. 8), Professor V. Novatski, Professor W. Olszak (Ref. 9), Professor W. Nowinski (Ref. 10), Kazuo Yamada (Ref. 11), R. Trostel (Ref. 12), A. Einstein (Ref. 13), P. Debay (Ref. 14), and F. Seitz (Ref. 15). Starting with the equations of thermoelasticity (1.1), the respective hypothesis of which can be found in S. Timoshenko's "Theory of Elasticity", the author deduces a particular solution of the potential of thermoelastic displacement Φ (1.5), found in E. Melan's paper (Ref. 16). Since the solution obtained does not fulfill the boundary conditions, the author adds to it the solution of the elasticity theory which corresponds at T = 0. He then studies the nonstationary

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85617

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A125/A026

On Some Problems of Thermoelasticity

thermal stresses in a thick-wall tube of infinite length, assuming the temperature field to be axial-symmetric and constant along the tube. The thermal conductibility equation is expressed in this hypothesis by (2.1) and its solution (2.4) is also known by H.C. Carlskaw and J.C. Jaeger(Ref. 17). The potential of the thermoelastic displacement is determined by the relations (2.6) and (2.7). The stress components defined by the potential (2.8) are determined after satisfying the boundary conditions (2.9) by the relation (2.10). The sums of the stresses $\sigma_r = \bar{\sigma}_r + \bar{\bar{\sigma}}_r$, $\sigma_\phi = \bar{\sigma}_\phi + \bar{\bar{\sigma}}_\phi$ represent the initial solution of the problem. This allows the analysis of the variation manner of the stress in function of the thermal boundary conditions. Starting with a particular case of thermal conditions: $T(r_1,t) = T_0$ and $\frac{\partial T(r_2, t)}{\partial r} = 0$, the author establishes the temperature relation (2.1) and the relation of stresses (2.12). The α_n numbers interfering in these two relations are determined by the transcendental equation (2.13). The roots of this equation are determined according to the Jahnke - Emde tables (Ref. 19). Reference is made to a calculation example, the results of which are compiled in Figures 2, 3, and 4. The surface layer is subjected to some very great normal annular stresses. This stress drops after a while. The thickness of the tube does not influence the stress values, but only the duration of the maximum values of the stress. The problem

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On Some Problems of Thermoelasticity

R/008/60/000/001/004/009
A125/A026

is reduced to the establishment of such a heating method of the turbine at starting, that no exaggerated stresses should appear at the internal stresses. The author then examines the dynamic effects of the nonsteady temperature conditions in case of a dynamic problem of thermoelasticity in semispace and in case of a dynamic problem of thermoelasticty in a circular cylinder. Reference is made to Professor W. Nowacki (Ref. 20), the problem of Dirchlet, mentioned in (Ref. 21), V.I. Danilovskaia (Ref. 22), and McLachlan (Ref. 24). There are 6 figures and 27 references: 3 Polish, 2 Soviet, 10 English, 10 German and 2 French.

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSKI, W.

TECHNOLOGY

PERIODICAL: ARCHIWUM BUDOWY MASZYN Vol. 5, no. 4, 1958

DERSKI, W. Stresses and dislocations in a thin cooling rig caused by the action of unsteady heat flow. p. 449.

Monthly List of East European Accessions (EEAI) LC, Vol 8, no. 4. April 1959, Unclass

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

2
1-F\W

Derski, Wlodzimierz. On transient thermal stresses in a thin circular plate. Arch. Mech. Stos. 10 (1958), 551–558. (Polish and Russian summaries)

Transient thermal axially symmetric state of stress in a circular plate suddenly heated at the rim is investigated. No loss of heat or loss according to Newton's law is postulated. Thermoelastic potential of displacement Φ is used, and the solution is composed of two parts: one depending on Φ, and the other pertaining to the athermal problem. *J. Nowinski* (Madison, Wis.)

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

22504

24.4000 1538, 1395, 1158

S/033/61/013/002/001/004
D250/D304

AUTHOR: Derski, Włodzimierz (Warsaw)

TITLE: A dynamic problem of thermoelasticity concerning a thin circular plate

PERIODICAL: Archiwum mechaniki stosowanej, v. 13, no. 2, 1961, 177-185

TEXT: The author discusses the problem of a thin circular plate of radius a which is subject to the action of an axially symmetric temperature field appearing as a result of a sudden heating of the edge. This field is characterized also by the fact that the heat exchange with the ambient medium may take place at both surfaces $\pm\delta/2$ (where δ is the plate thickness). This heat exchange is determined by the coefficient h. With such assumptions the heat equation is

$$\frac{\partial T}{\partial t}=\varkappa\left(\frac{\partial^2 T}{\partial r^2}+\frac{1}{r}\frac{\partial T}{\partial r}\right)-hT, \quad (1)$$

where T - temperature, t - time, $\varkappa$ - coefficient of heat conduction, and r - radius. The solution according to the author (Ref. 11:

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22505
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D250/D304

A dynamic problem of...

Stan naprężenia w cienkiej tarczy kołowej, wywołany działaniem nieustalonego pola temperatury (The State of Stress in a Thin Circular Plate Due to a Nonsteady Temperature Field), Rozpr. Inżyn. 2, 6(1958), 253-263) has the form

$$(2)\quad T(r,t)=\eta(t)T_0\left[\frac{I_0(mr)}{I_0(ma)}-\frac{2}{a}\sum_{n=1}^{\infty}e^{-(\varkappa a_n^2+h)t}\frac{\varkappa a_n}{\varkappa a_n^2+h}\frac{J_0(a_n r)}{J_1(a_n a)}\right],\quad m=\sqrt{\frac{h}{\varkappa}},$$

This solution includes the particular case of h=0, which is that of a disc insulated at both surfaces $\pm c/2$, or of an infinite cylinder heated at the surface by a heat source of constant temperature T_0.

This case is described by the equation

$$(2.2)\qquad T(r,t)=\eta(t)T_0\left[1-\frac{2}{a}\sum_{n=1}^{\infty}e^{-\varkappa a_n^2 t}\frac{J_0(a_n r)}{a_n J_1(a_n a)}\right].$$

The author then discusses the state of stress. In this case there exists an unsteady temperature

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22505

field which will provoke dynamic effects. Thus, inertia terms will be contained in equations of elasticity, which in this case reduce to the unique equation

$$\frac{\partial \sigma_r}{\partial r} + \frac{\sigma_r - \sigma_\vartheta}{r} = \varrho \frac{\partial^2 u}{\partial t^2}, \tag{3}$$

where σ_r and σ_ϑ denote the radial and circumferential stresses, ϱ is density, and u is radial displacement. By using Hooke's relations, Eq. (2) may be expressed in displacements, thus

$$\frac{\partial^2 u}{\partial r^2} + \frac{1}{r}\frac{\partial u}{\partial r} - \frac{u}{r^2} - \frac{1}{c^2}\frac{\partial^2 u}{\partial t^2} = \vartheta_0 \frac{\partial T}{\partial r}, \tag{3.1}$$

where

$$c^2 = \frac{1-\nu}{1-2\nu}\frac{2G}{\varrho}, \quad \vartheta_0 = \alpha_T(1+\nu);$$

α_T - coefficient of thermal dilatation, ν - Poisson's ratio, G - shear modulus. The author solves the Eq. (3.1) by help of the Laplace transformation and gives the equation for the transform of the displacement.

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A dynamic problem of...

Integration of the latter equation is carried out by help of the residue theorems according to C.J. Tranter (Ref. 9: Integral Transforms in Mathematical Physics, London 1950), and N.W. McLachlan (Ref. 5: Modern Operational Calculus, MacMillan, London 1949). The imaginary, real, and complex roots are treated by help of the theorems given by G.N. Watson (Ref. 10: Theory of Bessel functions, Univ. Press, Cambridge 1922). The author then calculates the residues and gives the equation for radial displacement and the equation for stresses, both of which may be written in different forms for the numerical computation. He finally gives the tabulated functions met with in electrotechnics, according to N.W. McLachlan (Ref. 4: Bessel Functions, Oxford Press, Oxford 1955):

$$W(x) = \frac{2}{x}\frac{M_1(x)}{M_0(x)}\cos\left[\theta_1(x) - \theta_0(x) - \frac{\pi}{4}\right]$$ – (dissipation or loss function)

$$H(x) = \frac{2}{x}\frac{M_1(x)}{M_0(x)}\sin\left[\theta_1(x) - \theta_0(x) - \frac{\pi}{4}\right]$$ – (penetration function). This form shows clearly the periodic character of the solution.

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

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A dynamic problem of...

The author points out that in the case of $h \neq 0$ no solution convenient for actual computation could be found, but that this could be done for $h = 0$. In both cases, solutions could be obtained for small time intervals by using the asymptotic representation of the modified Bessel functions

$$I_0(x) \approx I_1(x) \approx \sqrt{\frac{1}{2\pi x}}\, e^x.$$

The author stated that in this case he confined himself to layers near $r = a$, and mentioned that the solution will be complicated. He said that if the case is confined to $r = a$, the results are relatively simple, and that in this case, $h = 0$, has been given by H. Parcus (Ref. 8: Instationäre Wärmespannungen (Unsteady Thermal Stresses), Wien 1959) who also mentions that a similar problem was treated by T. Mura (Ref. 6: Thermal Strains and Stress in Transient State, Proc. Second Japan Nat. Congr. Appl. Mechan., 1952; and Ref. 7: Dynamical Thermal Stresses due to Thermal Shocks, Res. Rep. Fac. of Eng., Meiji Univ., 8, 1956). There are 1 figure and 11 references: 2 Soviet-bloc and 9 non-Soviet-bloc. The four most recent references to English-language publications read as follows: N.W. McLachlan, Modern Operational Calculus, Macmillan, London 1949; J.C. Carslaw, H.S. Jaeger,

Card 5/6

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

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P/033/61/013/002/001/004
D250/D304

A dynamic problem of...

Conduction of Heat in Solids, Oxford Press, Oxford 1950; C.J. Tranter, Integral Transforms in Mathematical Physics, London 1950; N.W. McLachlan, Bessel Functions, Oxford Press, Oxford 1955.

ASSOCIATION: Department of Mechanics of Continuous Media IBTP Polish Academy of Sciences.

SUBMITTED: February 8, 1960

Card 6/6

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSKI, W.

On a certain dynamic problem of elasticity for a circular cylinder.
Bul Ac Pol tech 8 no.3:135-138 '60. (EEAI 9:11)

1. Department of mechanics of continuous media, Institute of Basic Technical Problems, Polish Academy of Sciences.
(Dynamics)
(Elasticity)
(Cylinder (Mathematics))

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSKI, WLODZIMIERZ

The state of strain and displacement in heavy plates due to a nonsteady field temperature. Rozpr inz PAN 10 no. 1:115-177 '62.

1. Wydzial Budownictwa Ladowego, Politechnika, Lodz.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSKI, W.

A method of solving of the system of equations of consolidation theory. Bul. Ac Pol tech 12 no.10:695-699 '64.

1. Department of Mechanics of Continuous Media of the Institute of Basic Technical Problems of the Polish Academy of Sciences, Warsaw. Submitted May 27, 1964.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSKI, Wlodzimierz

A dynamic problem of thermoelasticity concerning a thin circular plate. Archiw mech 13 no.2:177-185 '61.

1. Department of Mechanics of Continuous Media, Institute of Basic Technical Problems, Polish Academy of Sciences, Warsaw.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSTUGANOV, G. V.

Hardness of the emulsion layer during chemical photographic development. G. V. Derstuganov (Motion Picture Film Factory, Kazan). *Zhur. Nauch. i Prikl. Fot. i Kinematograf.* 1, 200-5(1950).—A method for studying emulsion swelling in solns. was described. The effect of K_2CO_3, Na_2CO_3, Na_2SO_3, Na_2SO_4, NaOH, and various combinations of these were studied. Emulsion hardness was increased by immersion in a soln. contg. 1 salt at a concn. above 0.2M. In order of their increasing effect were Na_2SO_4, Na_2SO_3, K_2CO_3, and Na_2CO_3. K_2CO_3 added to Na_2SO_4 soln. greatly increased its hardening action. Na_2CO_3 added to Na_2SO_3 soln. had an even greater effect and Na_2SO_4 the greatest effect. Alone, or with Na_2SO_3 soln., NaOH above 0.01M decreased emulsion hardness. In film processing the changes in hardness occurred soon after immersion in each new bath. At 20° or lower the hardness after 10-min. immersion was close to that for 1-hr. immersion. In concd. salt solns. or in 2% HCHO soln. hardness increased with immersion time. The development process for black-white and color movie film in 4 developers was followed by plotting hardness against time. Developer reaction products of metol, hydroquinone, or their mixt. did not affect hardness. For app. a glass rod, bent at the bottom and fused to form a smooth foot, was rotated over the film. The rod was inserted into a pulley on top of which was a beaker to which H_2O was added from

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Derstuganov, G. V.

a bucket. The film was fastened to a glass plate by rubber bands and immersed in soln. in a glass dish. This dish was placed in a larger glass dish contg. const.-temp. H_2O. A light was under the set-up, so that the moment when the foot touched the backing layer could be observed. The crit. load was calcd. as the total wt. of the rod, empty beaker, and added H_2O. The linear rate of the foot around its circle (2-2.5 mm./sec.), rate of adm. of H_2O (10-11 ml./sec.), and the diam. of the glass rod (1.5 mm.) was kept const. Reproducibility was ±5% in H_2O, worse in developing soln.

Eurilla Mayerle

2/2

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

DERSTUGANOV, G.V.

Effect of the developing rate on the reproduction of the image details by the photographic layer. Tekh.kino i telev. 4 no.4:53-57 Ap '60. (MIRA 13:9)

1. Kazanskiy filial Nauchno-issledovatel'skogo kinofotoinstituta. (Photography—Developing and developers)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

KHAYKIN, M.G.; DERSTUGANOV, G.V.; LEVKOYEV, I.I.; KUKHTIN, V.A.; SHAMIL'SKAYA, N.S.

Developing properties of some 4-amino- 5-pyrazolones and their derivatives. Trudy NIKFI no.46:5-16 '62.

(MIRA 18:8)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

S/081/62/000/004/062/037
B150/B138

AUTHORS: Khaykin, M. S., ~~Derstuganov, G. V.,~~ Levkoyev, I. I., Kukhtin, V. A., Shamil'skaya, D. B.

TITLE: The developing properties of some 4-aminopyrazolones-(5) and their derivatives

PERIODICAL: Referativnyy zhurnal. Khimiya, no. 4, 1962, 456, abstract 4L421 (Tr. Vses. n.-i. kinofotoinstituta, no. 37, 1960, 17-26)

TEXT: A synthesis is made of a series of derivatives of 4-aminopyrazolones-5, and their photographic properties are investigated. Some of these compounds, e.g. containing the methyl and free or substitution carboxyl group in position 3, are active developing substances. The introduction of the amino or oxy group into position 3 reduces the developing power. The introduction of substitutes into the phenol nucleus, which is in position 1 of the pyrazolone, has less influence on photographic properties. It is indicated that the photographic properties of 4-aminopyrazolones are connected with the electronic character of the substituting groups.
[Abstracter's note: Complete translation.]
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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

S/058/63/000/003/040/104
A062/A101

AUTHORS: Khaykin, M. S., Derstuganov, G. V., Levkoyev, I. I., Kukhtin, V. A., Shamil'skaya, D. B.

TITLE: On the developing properties of some 4-aminopyrazolones (5) and their derivatives. Report II

PERIODICAL: Referativnyy zhurnal, Fizika, no. 3, 1963, 82, abstract 3D560 ("Tr. Vses. n.-i. kinofotoin-ta", 1962, no. 46, 5 - 16)

TEXT: A synthesis was made of some 1-phenyl and 1-sulphophenyl-3-carbmethoxy- and 3-carbalcoxymethyl-4-aminopyrazolones (5). The developing properties of these compounds were investigated. It is shown that the conservation of weakly alkaline developing solutions, containing 4-aminopyrazolones, depends to a large extent on the electron character of the substituten in the 1st and 3rd positions of these compounds. It is made clear that the introduction of electronegative substitutes into the 1st and 3rd position of 4-aminopyrazolones reduces the stability of the developing solutions of these compounds with respect to the ions of bromine. For report I see RZhFiz, 1962, 10287.
[Abstracter's note: Complete translation]

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"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

BENING, .P.; NURSALEYEVA, I.N.; DERSTUGANOV, G.V.; KUDRYAVTSEVA, N.M.

Suitability of some biguanidine derivatives as fixing agents in the imbibition printing process. Trudy NIKFI no.46:36-42 '62. (MIRA 18:8)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

RUL', V.D.; DERSTUGANOV, G.V.

Research in the improvement of the chemicophotographic processing of infrared films for use as traveling matte. Trudy NIKFI no.46:85-90 '62.

Ways to improve the sharpness of ultra-contrast photographic images obtained by means of the reversal method. Ibid.:91-95

(MIRA 18:8)

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

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ACCESSION NR: AR3003332 S/0058/63/000/005/D079/D079

48

SOURCE: RZh. Fizika, Abs. 5D545

AUTHOR: Rul', V. D.; Derstuganov, G. V.

TITLE: Research aimed at improving the chemical-photographic processing of infrachromatic film for masks

CITED SOURCE: Tr. Vses. n.-i. kinofotoin-ta, vyp. 46, 1962, 85-90

TOPIC TAGS: photography, development, infrachromatic film, 2-mercapto-5-sulfobenzymidazole

TRANSLATION: Formulas are developed for a physical and chemical developer for infrachromatic film employed in combined photography by the "wandering mask" method. The chemical developer has a composition close to the composition of the standard N-1 negative developer. The physical developer contains KCNS. An investigation is made of the change in dimensions of the image upon introduction of 2-mercapto-5-sulfobenzymidazole in the chemical developer. D. Balabukha

DATE ACQ: 17Jun63 SUB CODE: PH, CH ENCL: 00

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APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

RUL', Ye.F.; KHAYKIN, M.S.; DERSTUGANOV, G.V.

Developing properties of some dephnetin derivatives and tanning action of the products of their oxidation. Zhur. nauch. i prikl. fot. i kin. 10 no.2:146-147 Mr-Ap '65. (MIRA 18:5)

1. Filial Vsesoyuznogo nauchno-issledovatel'skogo kinofoto-instituta, Kazan'.

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022(

"APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00031022

R-2

HUNGARY/Diseases of Farm Animals - Diseases Caused by Bacteria and Fungi.

Abs Jour : Ref Zhur - Biol., No 11, 1958, 50164

Author : Derszy, D.

Inst : Hungarian Academy of Sciences.

Title : Incomplete Brucella Antibodies in Bovine Blood Serum.

Orig Pub : Acta veterin. Acad. sci. hung., 1956, 6, No 4, 395-399.

Abstract : With the aid of indirect blood serum reaction (BSR), the presence of incomplete brucella antibodies (IBA) in the bovine blood serum was proved. It is assumed that IBA bind antigen but are unable to fixate the complement. The binding of antigen is found by adding serum which contains specific complement binding antibodies, and then adding a hemolytic system. In the absence of IBA, antigen enters into a reaction with the complement binding serum,

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HUNGARY/Diseases of Farm Animals - Diseases Caused By Bacteria and Fungi. R-2

Abs Jour : Ref Zhur - Biol., No 11, 1958, 50164

taken as an indicator, and a binding of the complement takes place; however, hemolysis does not occur. Although antigen becomes bound in the presence of IDA, the complement binding serum is unable to utilize the complement, and hemolysis follows despite the simultaneous presence of antigen and of specific complement binding antibodies. IDA binds the lysated antigen only. Despite the fact that indirect DSR was seldom positive in cases when DSR and the agglutination reaction (AR) were negative, the author maintains that finding IDA assists in serological diagnosis of brucellosis. -- G.Ye. Frunkina.

Card 2/2

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DERTABUBAM, B.V.; MISHCHENKO, K.P.

Rate of crystallization for gypsum from aqueous solutions of certain salts. Probl.kin.i kat. 7:123-136 '49. (MLRA 9:9)

1. Laboratoriya mineral'nykh soley Gosudarstvennogo Ordena Trudovogo Krasnogo Znameni Instituta prikladnoy khimii.
(Crystallization) (Gypsum)

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DERTEV, A.K.

Paleogene sediments in the Bol'shezemel'skaya Tundra. Trudy VNIGRI no.220. Geol. sbor. no.8:65-69 '63.
(MIRA 17:3)

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1ST AND 2ND ORDERS 3RD AND 4TH ORDERS

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Atomic structure of glass. N. K. Dertev. *Stekol'naya Prom.* 16, No. 2, 16–18(1940); *Chem. Zentr.* 1940, II, 1107.—Extensive investigations were made on the density, hardness and viscosity of glass and its transformation into a brittle state in connection with the at. structure when hot and upon cooling. The investigation was carried out in the light of work of Laue (1912) and recent investigators according to whom a lattice of Si glass is made up of Si atoms each surrounded by 4 O atoms forming a tetrahedron.

M. Hosch

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Glass, sulfuric acid and hydrochloric acid from sodium chloride, silica and gypsum. N. K. Dertev. *J. Applied Chem.* (U. S. S. R.) 14, 708-8(1941).—D. gives the results of preliminary work on substitution of NaCl for glass manuf., in the place of calcined soda. Fusion of NaCl, SiO_2 and $CaSO_4$ leads essentially to Na_2SiO_3, $CaSiO_3$ and SO_2Cl_2, with side-reactions yielding SO_3; in presence of water there is also formation of H_2SO_4 and HCl; the presence of H_2O and carbon causes formation of H_2S; the presence of Fe yields some $FeCl_3$. A mixt. of NaCl, SiO_2 and $CaSO_4$ when heated goes through these stages: (1) under 100°, evapn. of H_2O; (2) about 800°, fusion of NaCl-$CaSO_4$ eutectic and reaction of $CaSO_4$ with SiO_2 yielding $CaSiO_3$ and SO_3; (3) about 1100°, the main reaction occurs and any $FeCl_3$ formed is volatilized; (4) 1300-400° the mixt. fuses into glass, free of bubbles and specks. In the course of glass making by this process 25-30% of Fe content of the charge is volatilized; thus it is feasible to use low-grade silica for manuf. During fusion there is some volatilization of NaCl, the amt. depending upon the kind of siliceous raw material used. $CaSO_4$ is decomposed almost completely, leaving only 0.4-0.8% SO_3 in the product. HCl and H_2SO_4 are condensible and may be utilized as by-products of operation. G. M. K.

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