KONONENKO, V.A.

PHASE I BOOK EXPLOITATION SOV/4502

Akademiya nauk SSSR. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, tom 6 (Investigations of Heat-Resistant Alloys, Vol. 6) Moscow, 1960. 319 p. Errata slip inserted. 3,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut metallurgii imeni A. A. Baykova. Nauchnyy sovet po probleme zharoprochnykh splavov.

Editorial Board: I. P. Bardin (Deceased) Academician, G. V. Kurdyumov, N. V. Ageyev, Corresponding Member, Academy of Sciences USSR (Resp. Ed.), I. A. Oding, I. M. Pavlov, and I. F. Zudin, Candidate of Technical Sciences; Ed. of Publishing House: V. A. Klimov; Tech. Ed.: S. G. Tikhomirova.

PURPOSE: This book is intended for research workers in the field of physics of metals and for metallurgists, particularly those working on heat-resistant alloys.

COVERAGE: This collection of 45 articles deals with various problems in the

Card 1/10

S/601/60/000/011/008/014
D207/D304

AUTHORS: Kozyrskiy, G. Ya., and Kononenko, V. A.

TITLE: Fragmentation of nickel grains during creep

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 11. 1960. Voprosy fiziki metallov i metallovedeniya, 94-100

TEXT: The authors observed fragmentation of grains and other structural changes in nickel during creep, employing a technique used earlier for iron by G. Ya. Kozyrskiy, V. A. Kononenko and P. N. Okrainets' (Ref. 1: Ukr. fiz. zhurn., 3, no. 3, 391, 1958; Ref. 2: Sbornik "Voprosy fiziki metallov i metallovedeniya" no. 9, 12, 1959). A single sample was used. It was made of pure and annealed (3 hours at 1100°C) nickel. Structural changes were deduced from changes in X-ray diffraction patterns and also observed directly by microphotography. Creep tests at 450°C for

Card 1/3

610 hours under a load of 5 kg/mm^2 showed gradual fragmentation of grains. Fragmentation was more intense in the initial stages of the test when the rate of creep was higher. Fragment dimensions (0.1 - 0.6 mm) were of the same order as grain dimensions, but 2 - 3 orders were greater than block dimensions (10^{-5} cm). Apart from grain fragmentation, blocks were also broken up in some grains continuously throughout the creep test, while in other grains blocks increased in size due to the annealing effect at 450°C. Microhardness increased gradually up to 120 hours under load and then decreased, retaining after 610 hours a value higher than at the beginning of the test. This change of microhardness is due to more intense fragmentation and a consequent generation of type II deformations during the earlier stages of the test. In the later stages, fragmentation was less intense, creep proceeded mainly by slip along grain and fragment boundaries, some deformations were removed and some blocks grew in size; all this reduced microhardness. There are 3 figures, 3

Fragmentation of nickel...

S/601/60/000/011/008/014
D207/D304

tables and 2 Soviet-bloc references.

SUBMITTED: September 15, 1959

Card 3/3

35381
S/601/61/000/013/013/017
D207/D302

18.1150

AUTHORS: Kozyrskiy, G. Ya. and Kononenko, V. A.

TITLE: A study of changes of the structure of a metal in the initial stages of deformation

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot, no. 13, 1961. Voprosy fiziki metallov i metallovedeniya, 133-138

TEXT: The authors studied the initial stages of creep in nickel using an X-ray technique earlier described by them and P. N. Okrainenko, and by G. Ya. Kozyrskiy and V. M. Danilenko. This method which consists of synchronous rocking (rotation) of a sample and a cylindrical photographic film about the same axis, gives information about individual grains in polycrystals. Samples were in the form of cylindrical rods of 5 mm diameter and 50 mm long. They were prepared from 99.99% pure nickel by adding 1% Mo. Before tests the samples were annealed in evacuated quartz ampoules at 1100°C for 70 hours. After this treatment the mean grain dimensions

Card 1/2

were about 0.4 mm. In X-ray measurements Cu radiation, with the $K\alpha_2$ component filtered out, was employed. Creep tests were carried out at 550°C under loads of 5 and 7.5 kg/mm^2 applied for up to 223 hours. These loads produced deformations from 2 to 4%. Grain fragmentation occurred only during the first stage of creep, lasting several minutes. Mosaic angles (angles between orientations of blocks or fragments in a grain) increased throughout the tests. Increase of the applied load, from 5 to 7.5 kg/mm^2, increased the number of blocks into which grains were broken up. The X-ray results were confirmed by examination of polished sections with a metallurgical microscope. There are 5 figures and 3 Soviet-bloc references.

SUBMITTED: September 15, 1960

X

S/601/62/000/016/004/029
E193/E383

AUTHORS: Kozyrskiy, G.Ya. and Kononenko, V.A.

TITLE: The effect of chromium and boron on the creep of nickel

SOURCE: Akademiya nauk Ukrayins'koyi RSR. Instytut metalofyzyky. Sbornik nauchnykh rabot. no. 16. Kiyev, 1962. Voprosy fiziki metallov i metallovedeniya. 31 - 38

TEXT: Mechanical tests, metallographic examination and X-ray diffraction measurements were used to study the effect of 1.5% Cr and 0.01% B additions on the rate of primary and steady creep of Ni. The creep tests were carried out at 550 °C under stresses of 5 - 15 kg/mm^2 on specimens annealed to obtain an average grain-size of approximately 0.5 mm. The results of the first series of experiments showed that both Cr and B additions brought about a decrease in the rate of creep, but that the effect of Cr on the primary and steady creep rate was, respectively, more and less pronounced than that of B. It was also found that the rate of creep of the Ni-Cr alloy was slower in air than in vacuum, this effect being attributed to the formation of an oxide film acting

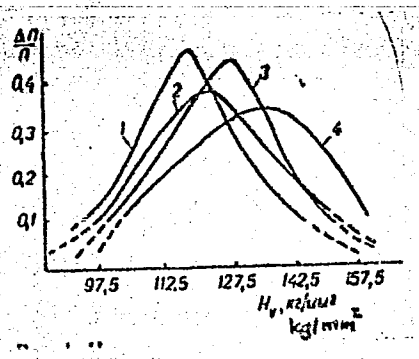
Card 1/3

as a barrier to the movement of dislocations. Further measurements showed that Cr considerably slowed down the increase in the degree of misalignment of the mosaic blocks during creep and that even under relatively high stresses the deformation in the early stages of creep was not uniformly distributed. This conclusion was confirmed by microhardness measurements. The results of statistical analysis of these tests are reproduced in Fig. 1, showing the microhardness (H_v, kg/mm^2) distribution curves for specimens: 1 - before the creep tests; 2 - after 36-h creep at 550 °C (total deformation 0.4%); 3 - after 96-h creep, and 4 - after rapid deformation in creep. Addition of B had a similar effect on the rate of increase in the degree of misalignment of the mosaic blocks, particularly in the steady-creep stage, i.e. when the effect of this addition on the rate of deformation was also most pronounced. Metallographic examination of the surface of Ni-Cr and Ni-B specimens tested in creep showed that both Cr and B slowed down the polygonization and recrystallization processes. The results of the present investigation indicate that Cr and B reduce considerably the rate of dislocation climb in Ni, thus providing

experimental support for the modern concepts, based on the dislocation theory of the function of alloying elements in alloys with high strength at elevated temperatures.
There are 3 figures and 4 tables.

SUBMITTED: January 26, 1962

Fig. 1:



KOZYRSKIY, G. Ya.; KONONENKO, V.A.

Vacuum chamber in an IP-4M unit. Zav. lab. 30 no.10:1263-1264 '64. (MIRA 18:4)

1. Institut metallofiziki AN UkrSSR.

L 55975-65 EWT(1)/EWT(m)/EWP(w)/EWA(d)/T/EWP(t)/EEC(b)-2/EWP(b)/EWA(c)
Pi-4 IJP(c) JD/GG
ACCESSION NR: AP5012505

UR/0032/65/031/005/0623/0624
539.16.07

42
40

AUTHORS: Kozyrskiy, G. Ya.; Kononenko, V. A.; Sklyarov, O. Ye.

TITLE: An x-ray camera for studying the mosaic structure of crystals

SOURCE: Zavodskaya laboratoriya, v. 31, no. 5, 1965, 623-624

TOPIC TAGS: crystal structure, x ray photography, metal grain structure / MBS 2 microscope

ABSTRACT: The authors have devised a camera for determining mosaic structure in crystals. The specimens in this camera may be rotated about any axis perpendicular to the incident beam by having two mutually perpendicular axes of rotation with the direction of the incident beam parallel to one of them. This rotation has caused reflection to disappear in older cameras because of the problem of beam shape, which is elliptical. This disadvantage is eliminated in the [illegible] setup by keeping the relative position of specimen to beam fixed. Another source of error in older cameras, shifting of grains during deformation, has been removed by developing a special holder for the specimen, allowing compensation for any deformation. The camera permits complete determination of

Card 1/2

L 55975-65
ACCESSION NR: AP5012505

2

mosaic pattern in grains, permits study of grain distribution (about any axis of rotation) caused by creep of metal at high temperature, and also allows observation of other structural changes in metals during deformation. Computations were made by means of an MBS-2 microscope. Orig. art. has: 1 figure.

ASSOCIATION: Institut metallofiziki Akademii nauk UkrSSR (Institute of the Physics of Metals, Academy of Sciences UkrSSR)

SUBMITTED: 00 ENCL: 00 SUB CODE: ES, SS

NO REF SOV: 001 OTHER: 000

Card 2/2

L 31567-66 EWT(m)/EWP(w)/T/EWP(t)/ETI IJP(c) JD/HW/GD/JH

ACC NR: AT6010588 SOURCE CODE: UR/0000/65/000/000/0132/0146

AUTHOR: Kozyrskiy, G. Ya.; Kononenko, V. A.

ORG: Institute of Metal Physics, AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Effect of aluminum on structural changes in nickel during creep

SOURCE: AN UkrSSR. Fazovyye prevrashcheniya v metallakh i splavakh (Phase transformations in metals and alloys). Kiev, Naukova dumka, 1965, 132-146

TOPIC TAGS: nickel, nickel alloy, aluminum alloy, creep

ABSTRACT: Structural changes occurring during creep of pure nickel and a nickel alloy with 2.93% Al were investigated by subjecting the samples to heat treatment and annealing, then measuring the microhardness, disorientation, and deformation during creep, and using X-ray diffraction analysis. The structure formed during creep was found to be stable during heating without loading up to temperatures higher than the testing temperatures. Addition of 2.93% Al has a substantial effect on the creep of nickel. Deformation during its first stage decreases, and so does the rate of steady-state creep, while the growth of disorientation is hindered. Because it is unevenly distributed over the body of the grains, aluminum does not decrease the inhomogeneity of the distribution of plastic deformation. The inhomogeneous distribution of plastic deformation causes a concentration of stresses in certain parts of the grains (most often in the boundary region). Accumulation of stresses may lead to the

Card 1/2

L 31567-66

ACC NR: AT6010588

formation of microcracks. The formation of folds in the body of the grain or grain migration promotes relief of the stresses. The presence of Al hinders the processes of polygonization and recrystallization. A nonuniform distribution of the impurity may cause the formation of a toothlike shape of the grain boundaries. Orig. art. has: 9 figures and 1 table.

SUB CODE: 11 / SUBM DATE: 18Dec64 / ORIG REF: 017 / OTH REF: 008

Card 2/2

L 31567-66 EWT(d)/EWT(m)/EWP(w)/EWP(v)/EWP(t)/ETI/EWP(k)/EWP(h)/EWP(l) IJP(c)

ACC NR: AP6027792 JD/HW SOURCE CODE: UR/0126/66/022/001/0108/0111

AUTHOR: Kozyrskiy, G. Ya.; Kononenko, V. A.

ORG: Institute of Metal Physics, AN UkrSSR (Institut metallofiziki AN UkrSSR)

TITLE: Investigation of creep in alloyed nickel subjected to preliminary deformation

SOURCE: Fizika metallov i metallovedeniye, v. 22, no. 1, 1966, 108-111

TOPIC TAGS: tensile testing machine, nickel base alloy, creep mechanism, metal deformation / IP-4M tensile testing machine

ABSTRACT: The article deals with the effect of preliminary deformation performed at room temperature on the creep of alloyed Ni at 700°C. The investigation was performed on specimens (d = 5 mm, l = 50 mm) of two alloys, representing solid solutions of Ni + 19.8 wt.% Cr and Ni + 1.18 wt.% Al, annealed at 1100°C until their grain size became 0.4-0.8 mm, which were stretched at room temperature to various degrees of deformation in an IP-4M machine at a straining rate of 0.05 mm/sec, after which they were subjected to stabilizing annealing at 800°C and creep tests at 700°C. The Ni-Cr specimens were tested under a stress of 10 kg/mm^2 and the Ni-Al specimens, under 2.5 and 5 kg/mm^2. Findings: for Ni-Cr

Card 1/3 UDC: 539.376:546.74:546.797:620.186.4

ACC NR: AP6027792

specimens the optimal degree of deformation was found to be 10% (lowest rate of steady-state creep and longest life) (Fig. 1), whereas for Ni-Al specimens this optimal degree was found

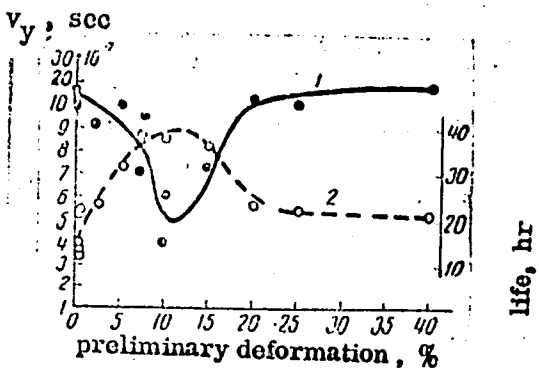


Fig. 1. Rate v_y (1) of steady-state creep and life (2) of the alloy Ni + 19.8 wt.% Cr under a load of 10 kg/mm^2 at 700°C as a function of degree of preliminary deformation at room temperature

to be 5%. It is shown that the optimal degree of deformation must be that which, while increasing the creep resistance of the metal, still does not provoke any intense recrystallization processes. Increasing the load on the Ni-Al specimens from 2.5 to 5 kg/mm^5 eliminates the positive effect of preliminary deformation. As a metallographic examination showed, cross slip was absent in the specimens stressed at 2.5 kg/mm^5, whereas it was intense in the

Card 2/3

Card 3/3 nst

KONONENKO, V. G.

Met (3)

Metallurgical Abst.
Vol. 21 Apr. 1954
Joining

*Electric Arc Welding of Copper. D. A. Lyukevich, S. I. German, and V. G. Kononenko (*Avtog. Delo*, 1953, 24, (2), 15-17).—[In Russian]. Welding of Cu, using graphite electrodes and P-bronze (8-10% Sn, 0-28-0-35% P) welding rods, is described. The metal of the welds has better mech. properties than the sheet Cu itself. Metallographic examination shows compactness and uniformity of grain of the metal of the joints composed of dendrites of the solid soln. and of the eutectoid.—S. K. L.

SOV/124-57-3-3504

Translation from: Referativnyy zhurnal. Mekhanika, 1957, Nr 3, p 126 (USSR)

AUTHOR: Kononenko, V.G.

TITLE: To the Problems Encountered in Pressing Parts out of Sheet Metal (K voprosam vydavlivaniya detaley iz listovogo metalla)

PERIODICAL: Tr. Khar'kovsk. aviats. in-ta, 1954, Nr 15, pp 183-200

ABSTRACT: Bibliographic entry

Card 1/1

KONONENKO, V.G.

USSR/Chemical Technology. Chemical Products and Their Application -- Electrochemical manufacturing. Electrodeposition. Chemical sources of electrical current, I-8

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 5114

Author: Kononenko, V. G., Lyukevich, D. A.

Institution: Khar'kov Aviation Institute

Title: Point Anodizing of Aluminum Alloys

Original Publication: Tr. Khar'kovsk. aviats. in-ta, 1955, No 16, 27-36

Abstract: Description of a simple, cheap and dependable under conditions of aircraft production and operation, procedure for correcting flaws of the oxide film on various parts made of Al alloys, by point anodizing with direct and alternating current in sulfuric acid and chromic acid electrolyte (The experiments were carried out with specimens of D16ATV L 1.0; D16ATV L 0.8; D17M L 0.6 and D17M L 1.0). There is shown a diagram of a portable apparatus for point anodizing and optimal conditions are stated for the use of direct and alternating current with

Card 1/2

S/123/60/000/04/03/003

Translation from: Referativnyy zhurnal, Mashinostroyeniye, 1960, No 4, p 186, # 16906

AUTHOR: Kononenko, V.G.

TITLE: On the Changing Wall Thickness of Extruded Machine Parts 14

PERIODICAL: Tr. Khar'kovsk. aviats. in-ta, 1957, No 17, pp 91 - 99

TEXT: The author describes the results of investigating the fundamental factors determining a change in the wall thickness during pressing operations. A lathe with a T-shaped carriage was used as test installation. A presser was used as tool which possessed a removable end piece made of bearing balls or cylindrically shaped. Measurements were carried out by wire pick-ups and measuring devices. The AM4 MJ1,2 (AMtsML1.2) alloy was used as material. The author investigated the effect of the absolute stress magnitude of the presser on the wall thickness changes along the generatrix of the machine part and on the stress components of the pressure during the operational

VB

Card 1/2

SOV/137-58-7-14808

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 125 (USSR)

AUTHOR: Kononenko, V.G.

TITLE: Spinning of Sheet Metal (Obrabotka listovogo metalla vydavlivaniyem)

PERIODICAL: V sb.: Progressivn. metody shtampovki i kovki. Khar'kov, Oblizdat, 1957, pp 171-183

ABSTRACT: An experimental determination is made of the magnitude and sign of the stresses on the cylindrical portion (CP) of a spun part, electrical wire strain gages being used for this purpose. The experiments were conducted in the course of spinning (S) of shells of AMtsM alloy on a lathe. The recording was made with the use of an oscilloscope and a measuring circuit. The horizontal component of the stress brought to bear by the spinning tool and the strain were measured. It was found that the stress was affected by the thickness of the blank, the pressure of the spinning tool, the diameter of the blank, the lathe spindle rpm, and the differences in the length of the CP of the part being tested. It is noted that in the deformation of the conical portion of a shell, the CP of the part undergoes

Card 1/2

SOV/137-58-7-14808

Extrusion of Sheet Metal

elastic stresses of alternating sign which do not attain the σ_s of the material being machined. The absolute magnitude of the stress depends upon the force brought to bear by the tool, its points of application, and the rigidity of the part. Also studied was the effect of bending the material around the mandrel edge, and the effect of elastic stresses in the part upon the S coefficient. The effect upon the minimal S coefficient of thickness of material, diameter of mandrel, and angular velocity of lathe spindle were established. Practical suggestions are offered.

M.Ts.

1. Alloys--Machining 2. Alloys--Stresses 3. Lathes--Applications
4. Strain gages--Applications

Card 2/2

137-58-6-13775

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 6, p 367 (USSR)

AUTHOR: Kononenko, V.P.

TITLE: Pneumatic Vertical Impact Testing Machine for Dynamic (High-speed and Superspeed) Testing [Pnevmaticheskiy vertikal'nyy koper dlya dinamicheskikh ispytaniy (skorostnykh i sverkhskorostnykh)]

PERIODICAL: Tr. Khar'kovsk. aviats. in-ta, 1957, Nr 17, pp 247-250

ABSTRACT: The design of the ram impact machine provides for carrying out tests in tension, compression, and bending, also for performing and studying a number of technological processes, such as riveting, extrusion, and machining. With the aid of a charging device, compressed air is charged from a pressure tank into the power cylinder up to the demanded working pressure. At the time of charging the piston is in the up position, the end of the rod is joined to the lock by means of a ring rigidly fixed onto the frame. Upon the release of the lock the air in the power cylinder expands and propels the piston and the rod downwardly. The upsetting head or tool (UH) fixed to the end of the rod accomplishes the deformation by striking the

Card 1/2

137-58-6-13775

Pneumatic Vertical Impact Testing Machine (cont.)

specimen on an anvil. By varying the pressure in the cylinder or the distance of the setting of the UH it is possible to vary the amount of the energy of deformation or change the strain rate. Measurement of the speed of movement of UH is achieved by means of either a high-speed motion camera or an oscillograph apparatus which permits making a measurement of the length of a shock within the limits of 2-20,000 "N". The gage element of the recording apparatus is a photocell of the FEU-2 type. The impact machine of the proposed design is simple, inexpensive, and can be easily manufactured as a stationary or a transportable installation.

Z.F.

1. Metals--Testing equipment 2. Metals--Test methods 3. High speed photography --Applications 4. Oscillographs--Applications

Card 2/2

KONONENKO, V.G.

Investigating spinning lathe operations with mechanized cutting tool feed. Kuz.-shtam. proizv. 1 no.9:11-13 S '59. (MIRA 12:12)

(Metal spinning)

KONONENKO, V.G.; ZAYTSEV, K.I.

Hole piercing by means of noiseless detonation. Kuz.-shtam. proizv. 1 no.12:15-18 D '59. (MIRA 13:4)
(Punching machinery)

25(2) SOV/32-25-3-33/62

AUTHOR: Kononenko, V. G.

TITLE: Ram Impact Machine for Quick Testing of Materials (Koper dlya skorostnykh ispytaniy materialov)

PERIODICAL: Zavodskaya Laboratoriya, 1959, Vol 25, Nr 3, pp 343-346 (USSR)

ABSTRACT: Among the various testing machines for quick testing the most simple and cheap ones are the ram impact machines working by means of gunpowder explosion. In the present case a ram impact machine of this type as well as a measuring arrangement for quick testing were constructed under the assistance of the students: V. M. Lisovskiy, R. N. Pavlovskiy, B. N. Piliposyan, and others. The machine (Fig 1) consists of a working chamber, the vertical guide shaft, the frame and the support. The explosion chamber (working chamber) which is on the upper end of the guide shaft has two spark plugs. The latter ignite a smokeless gunpowder of the type "Sokol". The solid construction of the ram impact machine permits a velocity of the firing pin of $\gg$ 300 m/sec. For the purpose of damping the excess energy of the firing pin after the test deformation two shock absorbers for 2500 and 5000 kgm were used. The ram impact machine has the following characteris-

Card 1/2

Ram Impact Machine for Quick Testing of Materials SOV/32-25-3-33/62

tics: gas pressure up to 600 atm, operation of the firing pin - 1500 mm, weight of the pins - 2.45, 4.9, 9.8, and 19.6 kg, impact velocity of the pin and shaft - 5-300 m/sec. The falling speed of the firing pin is determined by means of a measuring arrangement (Fig 2) which has a generator for time recording GNB-1, a sweep oscillograph ZG-2A, an electron oscillograph 30-7, and a camera with an attachment lens FED. The operation technique of the apparatus is described. It is pointed out that in the present case dangerless work is possible by means of recording oscillograms in contrast with measurements carried out by means of time-lapse motion cameras SKS-1 and the operation technique on the ram impact machine LKI. There are 2 figures and 9 references, 7 of which are Soviet.

ASSOCIATION: Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute)

Card 2/2

S/182/60/000/002/003/012
A161/A029

AUTHOR: Kononenko, V.G.

TITLE: Surface Quality of Extrusion-Turned Parts

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 2, pp. 11 - 13

TEXT: The "extrusion turning" ("tokarno-davil'nyye raboty") is used in different industrial branches, but the factors affecting the surface finish in this process are not sufficiently studied, particularly in turning with the use of a tracer. The article contains information on experiments to this end. The tracer, the equipment and tools, the extrusion method and the experimental techniques were described by the author previously ("Kuznechno-shtampovochnoye proizvodstvo", 1959, No. 9). Extrusion was performed on a standard conical part with straight-line generatrix in a single pass of pressure roller and with the use of a tracer on a "1A62" (1A62) machine tool. The experimental blanks were of the following alloys: "AMцM" (AMtsM), "Д16AM" (D16AM), "Д1M" (D1M), "Я1T" (Ya1T), and "Л62" (L62), cut from sheets accepted by inspection and having no surface defects. The effect of the spindle rpm was studied (in a range of 570 - 1,800), of the space between the pressure roller and the mandrel, of the lubricant, of

Card 1/2

contact width, roller feed, finish and material of rollers. It is mentioned that in practical shop work scoring sometimes spoils parts extruded from high-carbon tool steel and is caused by sticking of metal particles on the pressing tool. It is known from foreign practice that this can be eliminated by cooling lubrication. The experimental results are given in tables. The following conclusions were drawn: 1) The process gives a high class surface finish. The finish does not depend on the kind of lubricant, rotation speed, metal grade and thickness of blanks. 2) The main factors affecting the work surface quality are the surface finish and hardness of pressure rollers, and the ratio between the roller feed and the trace (contact) width between it and the blank. The contact width must exceed the feed by 1 mm per revolution. There are 5 tables.

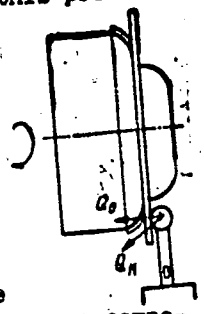
S/184/60/000/005/005/021
A104/A026

AUTHOR: Kononenko, V.G., Candidate of Technical Sciences

TITLE: Investigation of the Pressing Process of Lens-Type Compensators

PERIODICAL: Khimicheskoye mashinostroyeniye, 1960, No. 5, pp. 39 - 40

TEXT: Based on a request of the Uzbekhimmash (Uzbekian Designing and Scientific Research Institute for Chemical Machinery) in the Khar'kovskiy aviatsionnyy institut (Khar'kov Institute of Aviation) investigations of this problem were carried out. The components Q_o and Q_k were examined on a turning lathe, according to the diagram shown in Figure 2, on 0.5, 1.5, and 3-mm Ст. 3 (St. 3) steel ingots. Д-1 (D-1) alloy samples similar to the size of the lens-type compensators were used. The device consists of pressing rollers and a 28-mm diameter sliding-ball presser, made of hardened У10 (U10), ШХ15 (ShKh15) and ХВГ (KhVG) steels. Operational data are: speed of the spindle 250 ÷ 600 rpm; advancing depth 0.1 ÷ 0.3 mm per 1 revolution. Castor oil, grease, soap and graphite and a mixture of castor oil and colophony were used as lubricants. The surface of the device and the sample were controlled by a КВ-7 (KV-7) profilometer. Deformation-force compo-



Card 1/2

S/184/60/000/005/005/021
A104/A026

Investigation of the Pressing Process of Lens-Type Compensators

nents showed that the values Q_o and Q_k depend on thickness of material. Results obtained coincided satisfactorily with earlier calculations. Operation at highest possible speeds is recommended. The type of lubricant used has no influence on the coefficient of the deformation-force components. It was noted that ingots tend to stick to carbon steel devices. In order to establish operation conditions in which such adhesion can be avoided, pressers and rollers of У10А0 (U10A0), У12А (U12A), ШХ15 (ShKh15) and KhVG steels were used in further tests. Adhesion can be avoided by the use of lubricants withstanding high pressures, i.e., soaps, graphite, etc. Cooling by a soap emulsion is recommended. Best results were obtained with KhVG steel, heat-processed to RG60 hardness. Rolling pressers are better than the sliding type, but in both cases high surface cleanness is essential. The method described is recommended for small and medium production. There are 3 figures, 1 table and 3 Soviet references.

Card 2/2

S182/60/000/007/001/016
A162/A029

AUTHOR: Kononenko, V.G.

TITLE: Metal Working by Explosion (State and Perspectives of its Development and Application)

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 7, pp. 1 - 4

TEXT: Investigations on metal working by explosion were carried out for the first time in the USSR at the Laboratories of the Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute) under the supervision of R.V. Pikhtovnikov, where a special laboratory on investigations and working of metals by explosion had been set up. The laboratory was provided with special explosive frames of different designs with special control and measuring equipment where a series of technological investigations and processes had been developed for iron metallurgy, aviation, railroad transportation, chemical machine building plants, explosive riveting, explosive hot metal cutting, explosive hole punching, hydro-explosive metal sheet shaping etc. Despite definite advantages of this method its application in the USSR had been limited to hole punching in plates and rails. Although the USA has started using this method much later (in 1956) its industrial use

Card 1/2

S/184/61/000/001/006/014
A104/A029

1.1210

AUTHOR: Kononenko, V.G., Docent, Candidate of Technical Sciences

TITLE: Shaping of Bottoms by Explosive Power

PERIODICAL: Khimicheskoye Mashinostroyeniye, 1961, No. 1, pp. 34-36

TEXT: An inexpensive and simple method of shaping metal bottoms by explosive power is described. The high pressure emanating from the combustion or explosion of powder etc. is transmitted directly or through liquid onto the object undergoing deformation. The method of explosive stamping and drawing was first proposed by R.V. Pikhtovnikov (Ref. 1). The author applied this method to 1,600 mm diameter bottoms made of 1X18H9T (1Kh18N9T) acid-resistant steel. The experimental samples discussed in this article were five times smaller and thinner than the above-mentioned samples. Design and general view of the explosive device are shown in Fig. 1. The lower lid (1) has a hollow corresponding to the shape of the stamped object and acts as a matrix. The ingot slab is pressed into it by explosive gases. The upper lid (2) forms the hollow above the slab in which the gases from the cartridge chamber (3) collect

Card 1/5

and shape the slab. The fold holder (5) prevents corrugation. Pressing and drawing is recommended in two processes, i.e., first shaping of the spherical part of the bottom, then final shaping. The process can be further improved by stretching and fixing of the slab on the matrix followed by pressing. The ingot should be trimmed before final shaping. The use of a wooden or metal insert cone during the pressing and drawing phase is recommended. Its height should correspond to the depth of the hollow and its diameter should be 30-40 mm smaller than that of the slab. This cone reduces the space between the ingot and lid and less blasting-powder is needed. Bottoms obtained by this method are shown in Fig. 2, i.e., ingot slab, intermediate shape, completed bottom. Dimensions and shape correspond exactly to the matrix. There are no cracks or other faults. The success of the operation depends on proper determination of the gas pressure and of the weight of the powder charge. The pressure is calculated with the help of Laplace's Formula: $\frac{\sigma_1}{R_1} + \frac{\sigma_2}{R_2} = \frac{p}{\delta}$ and reads $p = p_{ult} = \frac{2\,\sigma_T\,\delta}{R} K_v$. Coefficient K_v is assumed to be 1.5 for powder

and 6 for high explosives. The weight is determined according to Noble's Formula for ballistic calculations and reads: $p_{in} V^k_{in} = p_{ult} V^k_{ult}$, in which K = polytrop. [Abstracter's note: designations ult (ultimate) and in (initial) are translations from the Russian кон (konechnaya) and нач (nachal'naya)]. Having obtained P_{ult} (Laplace's Formula, V_{in} and V_{ult} the weight of the charge is determined according to Noble's Formula: $P_{in} = f\Delta = f \frac{\omega}{V_{in}}$. The volume of the cone must be taken into account in V_{ult} calculations. Density of the charge Δ should not exceed 0.6. Shaping can be carried out with high explosives which are convenient in use, particularly with TAT-8 detonators. In view of their higher explosive force smaller smounts should be used. Bottoms of 1Х18Н9Т (1Kh18N9T) and Ст.20 (St.20) steels and of Д16 (D 16) and AM_u (AM_{ts}) aluminum alloys were shaped during tests. There was hardly any spoilage; all samples proved of high quality and without flaws. There are 2 figures and 4 Soviet references.

S/182/61/000/002/002/009
A161/A133

AUTHORS: Kononenko, V.G., Boborykin, Yu.A.

TITLE: Mechanization and automation of spinning work

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 2, 1961, 6 - 8

TEXT: The authors have designed and tested a new special device for mechanical spinning, i.e. shaping parts from sheet metal on a rotating mandrel by a spinning tool exerting pressure from outside. The process is stated to be used in the USSR and abroad. The usually manual spinning of small-size work is slow and causes physical strain which might result in professional diseases. The described device has a spinning power head producing a pressure of 1,600 kg. It consists of two cylinders joined by hinges and a bar into a triangle. The tool is attached to the power cylinder. The flat bar is designed for holding in the lathe tool holder, and may be replaced by a differently shaped one for attaching the power head in a spinning lathe. The dimensions of the power cylinder and of the feed cylinder are to be selected to produce the required stress at the available hydraulic pressure. The head is actuated by a handle, and the operator senses the working stress through the handle. Remote control from a

Card 1/2

push button panel is possible. The feed and control system can be switched over to program control, provided the first workpiece had been produced by a high-skilled operator (i.e. the first piece can be used as programming templet for further work). The control is effected by electromagnetic tapes and a controlled-flow piston pump. The control signals are transmitted from a command device to the electromagnet windings and a position tie rod of the inclined washer of the piston pump. The control system is now under development and is being tested. The device can be used on any lathe or any spinning lathe, speeds up the spinning process 3 - 4 times, and makes the use of special ЗР53 (ZR53) or ТТ53 (TT53) spinning lathes unnecessary. There are 6 figures.

Card 2/2

22984

S/182/61/000/007/002/006
D038/D113

1.1400

AUTHORS: Kononenko, V.G., Kushnarenko, S.G., Chizhov, V.G.

TITLE: Research into the plasticity of structural materials at high deformation speeds

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 7, 1961, 4-6

TEXT: Because of the lack of information on the plasticity of different alloys at high speeds of hot deformation and the resultant lack of forging machines with a tool speed of more than 8 m/sec, investigations were conducted on the plasticity of metal during hot deformation at impact speeds of up to 150 m/sec. Specimens 20 mm in diam and 30 mm long from the 45, 30ХГСА (30KhGSA), 25, 2Х13 (2Khl3) and 1Х18Н9Т (1Khl8N9T) steels, the ВТ3-1 (VT3-1) Ti-alloy, the АМг-3 (AMg-3), АМг-7 (AMg-7), АМг-6 (AMg-6) and АК-8 (AK-8) Al-alloys, and the ЭИ827 (EI827) low-plasticity, heat-resistant alloy were tested under a single-stroke gunpowder pile driver designed by the Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute). The investigations were aimed at finding the limit of deformation in the upsetting of specimens and at determining the features of hot deformation during fast forging. The

Card 1/2

S/182/62/000/002/004/006
D038/D112

AUTHORS: Kononenko, V.G. and Zaytsev, K.I.

TITLE: The design and calculation of equipment for explosive hole punching

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 2, 1962, 20-25

TEXT: The article deals with the results of investigations on high-speed explosive hole punching, during which it was demonstrated that together with fine technological indices, i.e. high precision and quality of punching, satisfactory tool stability and absence of cracks, the process possesses fine power indices. The punching unit, used in machine-building plants, comprises: a cartridge chamber and a lock, a barrel, a silencer, frames, and male and female dies. It weighs about 25 kg and has a 30-75 cm capacity. The following gunpowder grades can be used in it: pyroxylin, nitroglycerin and black powder. A 2 g gunpowder charge punches a hole up to 25 mm diam in 15-18 mm thick plate. A special installation developed on a ШИ-1 (SHI-1) noise tester provided with radio electronic equipment (Registration Certificate No. 23631 issued to the authors and D.A. Rayzman) was used in noise measurement tests. The punches and dies can be manufactured from У8А (USA) tool steel

Card 1/2

S/182/62/000/002/004/006
D038/D112

The design and calculation .....

heat treated to RC 52-56 hardness. The authors conclude that the high-speed punching unit is more durable than conventional perforating dies. Descriptive technical data is also included. S.I. Gubkin, S.D. Ponomarev and A.V. Gadolin are mentioned. There are 7 figures and 10-Soviet-bloc references.

Card 2/2

KONONENKO, V.G., kand.tekhn.nauk

Use of explosive energy in metallurgy. Met. i gornorud. prom. no.4:64-69 Jl-Ag '62.

1. Khar'kovskiy aviatsionnyy institut.
(Explosives in sheet-metal work)

KONONENKO, V. G., kand. tekhn. nauk; SMOLOVIK, V. V., inzh.; STEL'MAKH, V. A., inzh.; BOZHKO, V. P., inzh.

Explosion briquetting of steel shavings. Mashinostroenie no.5:19-21 S-O '62. (MIRA 16:1)

1. Khar'kovskiy aviatsionnyy institut.

(Briquets)

L 10387-63 EWP(r)/EWT(m)/BDS--AEDC

ACCESSION NR: AP3000081 S/0182/63/000/005/0027/0031 55 54

AUTHOR: Konenko, V. G.; Kushnarenko, S. G.; Kotel'nikov, V. I.; Rayzman, D. A.; Checheta, I. A.

TITLE: New impact testing machines for high-rate mechanical testing of materials

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 5, 1963, 27-31

TOPIC TAGS: impact testing machines, explosion-actuated machines, high deformation rates, wide temperature range, subzero tests

ABSTRACT: The Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute) has built and tested two new explosion-actuated machines for high-rate tension tests of various materials over a wide temperature range. The first, a telescopic-type machine, is capable of testing at deformation rates of 15 to 300 m/sec and temperatures of -196 to +1200C. The second, a lever-type machine, was successfully tested in the same temperature range at deformation rates of 10 to 50 m/sec. At higher deformation rates the telescopic-type machine gives better results than the lever type. In both, loading is effected by detonating

Card 1/2

L 10387-63
ACCESSION NR: AP3000081

a measured explosive charge. Strain is measured by a wire strain gauge, registered on the screen of an oscillograph, and recorded photographically. In high-temperature tests the specimens are heated by a furnace which is quickly removed just before the explosive charge is detonated. In subzero testing the specimens are cooled in liquid nitrogen or a mixture of liquid nitrogen and benzene. Orig. art. has: 8 figures.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 17Jun63 ENCL: 00

SUB CODE: 00 NO REF SOV: 004 OTHER: 002

Card 2/2 ph/

KONONENKO, V.G., kand.tekhn.nauk,dotsent

Plastic deformations and increase in hardness of walls of extruded shells. Izv.vys.ucheb.zav.; mashinostr. no. 12:177-183 '63. (MIRA 17:9)

1. Khar'kovskiy aviatsionnyy institut.

L 4[illegible]-65 EWT(d)/EWT(1)/EWT(m)/EWP(w)/EWA(d)/EWP(v)/EWP(t)/EWP(k)/EWP(z)/EWP(b)/
ACCESSION NR: AP4018704 EWA(h)/EWA(c) Pf-4/Peb UR/0145/63/000/012/0177/0183
ADM/SD/AM/EM

AUTHOR: Kononenko, V. O. (Candidate of technical sciences, Docent) 42 B

TITLE: Plastic deformation and hardening of walls in pressure-formed thin shells 26

SOURCE: IVUZ. Mashinostroyeniye, no. 12, 1963, 177-183

TOPIC TAGS: thin shell, pressure forming, plastic deformation, wall hardening, [illegible] stress, annealing temperature, metal shell

ABSTRACT: The influence of nonuniform plastic deformation of sheet metal on the [illegible] of pressure-formed objects has been studied. [illegible] and the [illegible] face hardness (in various metals) [illegible] treatment method for the nearly [illegible] impairing the hardness and str[illegible] performed on a 1A62 press at [illegible] were extruded from alloys [illegible], [illegible], and AM[illegible], ranging [illegible] to 1.5 mm. Finished products were checked for size, hardness, and [illegible] (the latter being measured with wire tensometers). Some of the [illegible] were annealed before being checked for residual stresses. Hardness was also checked before and after annealing. After pressing, the dimensions of the

Card 1/2

L 4[illegible]-65

ACCESSION NR: AP4018704

frustums were as follows: small diameter, 50 mm; large diameter, 130 mm; and [illegible] height, 60 mm. The hardness of the lateral walls was greater than that [illegible] end and varied with the type of metal, the feeding speed, and the [illegible] It did not vary along the generatrix nor with an increase in spindle [illegible] diameter of the specimen. Total change in hardness ranged from [illegible] [illegible] increased with the total amount of deformation. Residual stresses in [illegible] and [illegible] reached the value of 10 kg/mm^2, in [illegible] -- 5 kg/mm^2, [illegible] -- 3 kg/mm^2. Experiments showed that by retaining the proper [illegible] temperature for a given metal and by reducing the time of annealing it [illegible] to preserve the hardness of the material. Orig. art. has: 1 [illegible] and 4 tables.

ASSOCIATION: Khar'kovskiy aviatsionnyy institut (Kharkov Aviation Institute)

SUBMITTED: 10Apr62 ENCL: 00 SUB CODE: ME

NO REF SOV: 003 OTHER: 000

Card 2/2

KONONENKO, V.G.; BOBORYKIN, Yu.A.

Explosive pressing of blanks for turbine blades. Kuz.-shtam. proizv. 5 no.3:10-13 Mr '63. (MIRA 16:4)
(Explosives in sheet-metal work)

KONONENKO, V.G., kand. tekhn. nauk; PAKHOMOV, A.G.; KUDRYAVTSEV, V.P.; SMOLOVIK, V.V.

New method of briquetting metal chips. Met. i gornorud. prom. no.3:31-34 My-Je '64. (MIRA 17:10)

L 6741-65 EWT(1)/EWT(m)/EWP(k)/EWP(b) Pf-4 ASD(m)-3 JD/HW
ACCESSION NR: AP4045811 S/0182/64/000/009/0030/0033

B

AUTHOR: Kononenko, V. G.; Smolovik, V. V.

TITLE: Equipment and method for impact compacting of metal chips

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 9, 1964, 30-33

TOPIC TAGS: chip compacting, explosive chip compacting, explosive forming, high energy rate forming, HERF

ABSTRACT: The Khar'kovskiy aviatsionnyy institut (Khar'kov Aviation Institute) has developed a method and designed an experimental unit for explosive compacting of metal chips. The unit, a kind of horizontal hammer (see Fig. 1 of the Enclosure), operates as follows: A portion of chips 4 is charged into the container 5 rigidly connected to the rear plate 8. The explosive charge, or a mixture of gas and air, is fed into the explosion chamber 1. When the charge is exploded, the hot explosion products propel the projectile 3 along the barrel 2 and into the container 5. At the same time the barrel moves under the effect of the explosion and pulls the container in the opposite direction through connecting rods. This increases the force with which the

Card 1/3

L 8741-65
ACCESSION NR: AP4045811

projectile hits the chip charge. The compacted chips are ejected and the projectile is returned to the barrel by the hydraulic cylinder 10. With a combustion-chamber volume of 17.5 l, the unit produces an impact with an energy of 18,000 m-kg, which is sufficient to compact [illegible]—14 kg of chips to a density of 4.5—5.5 g/cm^3. The density could be increased to 6.0—6.5 g/cm^3 by preheating the chips to 400—450C, which also eliminates the oil sticking to the chips. The unit capacity is 2[illegible]0 kg/hr. A special advantage of the unit is that all the energy is absorbed within the system; no heavy foundation is needed. Orig. art. has: 5 figures.

ASSOCIATION: none

SUBMITTED: 00 ATD PRESS: 3113 ENCL: 01

SUB CODE: IE NO REF SOV: 000 OTHER: 000

Card 2/3

L 8741-65
ACCESSION NR: AP4045811

ENCLOSURE: 01

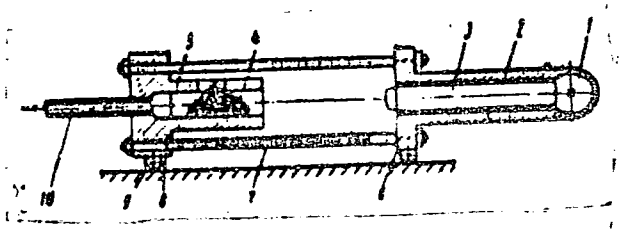


Fig. 1. Unit for explosive chip compacting

1 - Explosion chamber; 2 - barrel;
3 - projectile; 4 - chip charge;
5 - container; 6 - front plate;
7 - connecting rod; 8 - rear plate;
9 - wheel; 10 - hydraulic cylinder for back stroke.

Card 3/3

L 40795-66 EWT(1)/EWT(m)/EWP(t)/ETI IJP(c) JH/JD/WB

ACC NR: AP6018612 SOURCE CODE: UR/0420/65/000/004/0110/0115

AUTHOR: Kononenko, V. G.

ORG: Kharkov Aviation Institute (Khar'kovskiy aviatsionnyy institut)

48
B

TITLE: Investigation of the effect of deformation rate on corrosion resistance of metals

18

SOURCE: Samoletostroyeniye i tekhnika vozdushnogo flota, no. 4, 1965, 110-115

TOPIC TAGS: stress corrosion, alloy steel, stainless steel, carbon steel, aluminum alloy, magnesium alloy, metal deformation, deformation rate

ABSTRACT: Comparative experiments are conducted to determine corrosion stability as a function of the rate and temperature of deformation in various structural materials made from carbon, alloy and stainless steels as well as aluminum and magnesium alloys: st. 10, st. 45, 30KhGSA, 2Kh13, AK-8 and AMg-6. Annealed cylindrical specimens 12 mm in diameter and 18 mm long were deformed by upsetting to 11, 33, 50 and 60%. Hot specimens were deformed to 50%. The specimens were then placed in a corrosive medium (sulfuric acid) for a maximum period of 2½ hours. Corrosion was evaluated by the quantity of hydrogen given off per unit of exposed surface. Tables are given showing corrosion as a function of time. It was found that resistance to corrosion depends on the rate of deformation. The specimens show higher resistance to corrosion after hot de-

Card 1/2

L 40795-66

ACC NR: AP6018612

formation than after deformation in the cold state. Corrosion at the ends of the specimens was greater than on the lateral surface. This indicates that the nonuniformity of the deformed state rather than the degreee of deformation is the decisive factor in corrosion of metals subjected to upsetting. An increase in the rate of deformation increases the corrosion of all metals studied with the exception of st. 45 which showed a reverse behavior. Orig. art. has: 3 tables.

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

Card 2/2

AGAFONOV, A.K., kand. ekon. nauk; KONONENKO, V.I.; VASILENKO, G.K.; [illegible], V.I.; [illegible], V.I.; BORIAKIN, V.N., red.

[Price determination in the machinery industry] TSenoobrazovanie v mashinostroenii. Kiev, Naukova dumka. 1965. 259 p. (MIRA 18:11)

1. Akademiia nauk URSR, Kiev. Instytut ekonomiky.

KONONENKO, V.I.

Nikolai Sergeevich Bokarius. Vrach.delo no.12:1327-1329 D '56. (MIRA 12:10)

1. Kafedra sudebnoy meditsiny (zav. - prof.N.N.Bokarius) Khar'kovskogo meditsinskogo instituta.
(BOKARIUS, NIKOLAI SERGEEVICH, 1869-1931)

KONONENKO, V. I., Cand of Med Sci — (diss) "Excoriation as an object of forensic-medical research." Khar'kov, 1957, 15 pp (Kiev Medical Institute im A. A. Bogomolets), 250 copies (KL, 29-57, 93)

KONONENKO, V.I.

Determination of the period for the healing of bruises. Sud.-med. ekspert. 2 no.1:19-22 Ja-Mr '59. (MIRA 13:4)

1. Kafedra sudebnoy meditsiny (zaveduyushchiy - prof. N.N. Bokarius) Khar'kovskogo meditsinskogo instituta.
(WOUNDS AND INJURIES)

KONONENKO, V.I.; MANZHELA, V.I.

Electrographic examination of clothes and skin caused by stabbing-cutting and stabbing instruments. Sud.-med.ekspert. no.4:25-28 O-D '65. (MIRA 18:12)

1. Kafedra sudebnoy meditsiny (zav. - dotsent N.P.Marchenko) Khar'kovskogo meditsinskogo instituta. Submitted February 28, 1964.

ACC NR: AP7005577 SOURCE CODE: UR/0020/67/172/002/0267/0270

AUTHOR: Kononenko, V. I.

ORG: none

TITLE: Concerning the fundamental solutions of singular partial differential equations with variable coefficients

SOURCE: AN SSSR. Doklady, v. 172, no. 2, 1967, 267-270

TOPIC TAGS: differential operator, partial differential equation

ABSTRACT: The fundamental solution is obtained for the nonhomogeneous differential operator of order $2m$ with variable coefficients

$$\mathcal{L}(D_x, B_{x_{n+1}}) = \sum_{\nu=0}^{m} \sum_{i=0}^{2m-2\nu} \sum_{j_1,\ldots,j_i=1}^{n} A^{\nu}_{j_1,\ldots,j_i}(x) \frac{\partial^i}{\partial x_{j_1},\ldots,\partial x_{j_i}} B^{\nu}_{x_{n+1}},$$

where $B_{x_{n+1}}$ is the Bessel differential operator

$$K(x) = c\Delta_B^{(\nu+\gamma)/2} \int_{d_+} \int_0^{\pi} \int_0^{\xi} \oint_C \frac{e^{(\xi-\tau)\lambda}}{\mathcal{L}(\omega\lambda)} d\lambda\, g(\tau)\, d\tau \sin^{k-1}\alpha\, d\alpha\, \omega^k_{n+1} d\omega, \quad k > 0, x_{n+1} \geqslant 0.$$

UDC: 517.944

Card 1/2

ACC NR: AP7005577

The operator is defined in region D, an $(n+1)$-dimensional Euclidean space adjacent to the hyperplane $x_{n+1} = 0$. A proof is given of the existence in the small of the fundamental solution of this operator. The fundamental solution is given in the form

$$K(x, s) = K^{+}(x, s) + \int_D K^{+}(x, y)\, u(y, s)\, y^k_{n+1} dy.$$

The author thanks I. A. Kipriyanov for his formulation of the problem and his assistance. Presented by Academician I. N. Vekua on 19 March 1966. Orig. art. has: 10 formulas.

SUB CODE: 12/ SUBM DATE: 10Mar66/ ORIG REF: 005/ OTH REF: 001

Card 2/2

L 11153-67 [illegible]
ACC NR: AP6034021 SOURCE CODE: UR/0226/66/000/010/0084/0090

26

AUTHOR: Artamonov, A. Ya.; Kononenko, V. I.

ORG: Institute for Problems in the Science of Materials, AN UkrSSR (Institut problem materialovedeniya AN UkrSSR)

TITLE: Investigation of hard-alloy tool life during cutting of porous powder-metal materials

SOURCE: Poroshkovaya metallurgiya, no. 10, 1966, 84-90

TOPIC TAGS: tool life, tool, tool material, cutting tool, powder metal

ABSTRACT: Investigations have shown that the tool-life curves of BK 8, T15K6, and TsM-332 hard-alloy cutters produced by machining porous powder metal parts are of a non-monotonous character, which indicates a verity of factors determining the nature of wear of the cutting tool. It is very difficult to attribute the shape of the curves solely to the adhesive and diffusive processes. The presence of other types of tool wear, such as oxidation, abrasiveness, thermal fatigue, etc., is probable; these can be determined only by special investigations. Reliable complete data on the wear mechanics will facilitate the production of new tool materials for

Card 1/2

L 11153-67

0

ACC NR: AP6034021

specific purposes. It is established that monocarbide hard alloys are the best tool materials for machining porous metals. TsM-332 was found to be the least suitable tool material for machining. [Based on authors' abstract]

SUB CODE: 11/ SUBM DATE: 16Mar66/ORIG REF: 012/

Card 2/2

S/781/62/000/000/033/036

AUTHORS: Dushin, L. A., Kononenko, V. I., Privezentsev, V. I., Skibenko, A. I., Tolok, V. T.

TITLE: Microwave plasma diagnostics

SOURCE: Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza; doklady I konferentsii po fizike plazmy i probleme upravlyayemykh termoyadernykh reaktsiy. Fiz.-tekh. inst. AN Ukr. SSR. Kiev, Izd-vo AN Ukr. SSR, 1962, 156-164

TEXT: Several methods of plasma diagnostics are described, based on the interaction between the electromagnetic field and the plasma, with the electric field of the wave parallel to the external magnetic field, so that the external magnetic field does not influence the character of propagation of the microwaves used for the measurements. The real and imaginary parts of the coefficient of propagation of a microwave signal thorugh a plasma determine the attenuation and the phase constant of the wave. The plasma density is determined by the frequency at which the microwave signal ceases to pass through the plasma. The character of variation ofthe microwave signal as a function of the pressure was also

Card 1/2

determined. Measurements of the variation of the phase and attenuation of the signal make it possible to follow the variation of the density and the electron collision frequency during the decay of the plasma. Phase measurements yielded also data on the distribution of electron density along the radius. At the present time the use of microwave diagnostics is limited by the capabilities of the microwave radiation sources. Present microwave generators have sufficient power to diagnose plasmas with electron densities near 10^{15} per cu. cm. Once submillimeter equipment is available, the densities can probably raised to 10^{16}-10^{18} el/cm^3. There are 11 figures. Reference is made to work by Wharton (ref. 4, Microwave diagnostics for controlled fusion research, UCRL, 1957) and by Wharton and Slager (J. Appl. Phys. 31, 428 - 430, 1960).

DUSHIN, L.A. [Dushyn, L.O.]; KONONENKO, V.I.; KOVTUN, R.I.; SKIBENKO, A.I. [Skybenko, A.I.]; SINEL'NIKOV, K.D. [Synel'nykov, K.D.]; TOLOK, V.T.

Study of a plasma using a microwave interferometer. Ukr. fiz. zhur. 8 no.7:740-746 Jl '63. (MIRA 16:8)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.
(Plasma (Ionized gases))
(Interferometry)

ACCESSION NR: AP4015555 S/0089/64/016/002/0099/0103

AUTHOR: Adamov, I. Yu.; Dushin, L. A.; Kononenko, V. I.; Pavlichenko, O. S.

TITLE: Microwave emission of an electrodeless induction discharge

SOURCE: Atomnaya energiya, v. 16, no. 2, 1964, 99-103

TOPIC TAGS: microwave plasma emission, electrodeless plasma discharge, hyperthermal plasma emission, betatron emission mechanism

ABSTRACT: The purpose of the present work is the verification of the assumption made by other authors concerning the possibility of a hyperthermal microwave emission by a plasma of an electrodeless induction discharge. The discharge was in hydrogen, the variable magnetic field was created by a one-layer coil, 11 cm in diameter, 20 cm long connected to a 18.6 μf capacitor. The period of oscillation was 8.6 μsec. Magnetic probes were used for measuring the magnetic field in and out of the plasma. Both the microwave and the X-ray

Card 1/2

ACCESSION NR: AP4015555

emission were recorded. A correlation of both types of emission was confirmed. The microwave emission appears when there is a critical plasma density for a given frequency. The microwave power emitted is in several orders of magnitude higher than that which corresponds to thermal emission. "The authors are grateful to Ya. F. Volkov, V. A. Suprunenko, V. T. Tolok, and Ya. B. Faynberg for discussions and to L. V. Brzhechko for help with the work." Orig. art. has: 7 figures.

ASSOCIATION: none

SUBMITTED: 22Apr63 DATE ACQ: 12Mar64 ENCL: 00

SUB CODE: PH, GE NO REF SOV: 003 OTHER: 003

Card 2/2

1M

Card 1/2

L 12803-66

ACC NR: AT5022300

2

2 m long and 100 mm in diameter, produced by electrodeless discharge. The advantage of these methods over older methods is that only one probing frequency is needed. The use of these methods for investigating quasiconstant and constant plasma simplifies the process of determining density distribution. Present methods can be improved by using microwave beams with smaller apertures and higher frequencies and by using several frequencies. A description of the experimental apparatus is given; oscillograms showing receiver signals for various conditions are presented together with a schematic diagram of transmitter and receiver positions relative to the plasma column. The authors consider it their pleasant duty to thank K. I. Stepanov and V. P. Sizonenko for their valuable discussion of the results and for acquainting us with their work in this direction before it was published. Orig. art. has: 11 figures.

SUB CODE: 20/ SUBM DATE: 00/ ORIG REF: 004/ OTH REF: 001

Card 2/2 HW

L 1918-66 EWT(1)/ETC/EPF(n)-2/EWG(m)/EPA(w)-2 IJP(c) AT
ACCESSION NR: AP5024128 UR/0185/65/010/009/0977/0984

AUTHOR: Dushin, L. O. (Dushin, L. A.); Kononenko, V. I.; Kovtun, R. I.; Pryvezentsev, V. I. (Privezentsev, V. I.); Skybenko, A. I. (Skibenko, A. I.)

TITLE: Plasma investigation by means of the interferometer and the microwave cut-off method

SOURCE: Ukrayins'kyy fizychnyy zhurnal, v. 10, no. 9, 1965, 977-984

TOPIC TAGS: plasma decay, plasma measurement, plasma diffusion, plasma electron temperature, plasma diagnostics

ABSTRACT: The present paper describes a method for the study of plasma decay permitting a simultaneous measurement of phases and amplitudes of signals transmitted through the plasma. The phases were measured at 136 Gc/s and the amplitudes at 136.74 and 37 Gc/s. A method for plasma diagnostics by means of signals with different frequencies is also presented. An approximation of the radial plasma density distribution by means of the $F = 1 - (r/R)^{\gamma}$ function is discussed (γ is estimated by the measured mean electron density and the maximum density decrease, R is the radius of the plasma cylinder). An estimate is also made of the relative contributions of recombination and diffusion to the plasma decay process. In the

Card 1/2

Card 2/2

L 16088-66 EPF(n)-2/EWT(1)/ETC(f)/EWG(m) IJP(c) AT

ACC NR: AP5027660 SOURCE CODE: UR/0051/65/019/005/0674/0679

AUTHOR: Dushin, L. A.; Kononenko, V. I.; Pavlichenko, O. S.; Nikol'skiy, I. K.

ORG: none

TITLE: Damping radiation in the infrared region of the spectrum of plasma under electrodeless induction discharge 94

SOURCE: Optika i spektroskopiya, v. 19, no. 5, 1965, 674-679 B

TOPIC TAGS: plasma diagnostics, hydrogen, germanium, photoresistor, IR radiation

ABSTRACT: The authors investigated the damping radiation in the infrared region of the spectrum of an electrodeless induction discharge of hydrogen. The damping radiation in the region of 1.8 - 9.5 mk wave length was registered by a germanium photoresistor operating under the temperature of liquid nitrogen. The density of the plasma was determined based on the results obtained from measuring the temperature of plasma electrons and the intensity of damping radiation. The proposed method could be used for diagnostics of a dense plasma. The authors express thanks to A. F. Plotnikov and G. N. Zhizhin. Orig. art. has: 6 figures and 8 formulas.

21,44,55

Card 1/2

UDC: 537.525.1-15

L 16088-66

ACC NR: AP5027660

SUB CODE: 20 / SUBM DATE: 17Aug64/ ORIG REF: 002/ OTH REF: 004

Card 2/2

EWT(1)/EWG(1)/EPF(n)-2/EWG(m) IJP(c) AT

ACC NR: AP6007079

UR/0057/66/036/002/0304/0312

AUTHOR: Dushin,L.A.; Kononenko,V.I.; Sizonenko,V.L.; Skibenko,A.I.; Stepanov,K.N.

ORG: None

TITLE: Determination of plasma density distribution by microwave refraction

SOURCE: Zhurnal tekhnicheskoy fiziki, v. 36, no. 2, 304-312

TOPIC TAGS: plasma diagnostics, plasma density, plasma decay, microwave, electromagnetic wave refraction

ABSTRACT: Fermat's principle is employed to calculate the path of a microwave beam in a cylindrical plasma in which the density decreases monotonically with increasing distance from the axis for the two cases in which the beam lies in a plane containing the axis of the plasma cylinder or in a plane perpendicular to the axis. For each case there is derived an equation that gives the plasma density as a function of the distance from the axis implicitely in terms of the position at which the microwave beam leaves the plasma as a function of the angle of incidence. It is proposed that these equations be used to determine plasma density distributions from microwave refraction measurements. The proposed techniques were tested by measuring density distributions in decaying hydrogen plasmas at 5×10^{-2} mm Hg in a 2 m long 10 cm diameter quartz tube. The apparatus is described in more detail elsewhere by I.Adamov, L.Dushin, V.Kononenko,

Card 1/2

UDC: 533.9

L 23080-66

ACC NR: AP6007079

and O.Pavlichenko (Atomnaya energiya, 16, No. 2, 99, 1964). Microwaves of 8 mm wavelength were employed, and the radiating and receiving horns were provided with dielectric lenses that rendered the beam nearly parallel. For each run the antennas were held in fixed positions and the time after excitation of the plasma at which the refracted wave was received by the receiving antenna was recorded with an oscilloscope. Many such runs were made with the antennas in different positions and inclined at different angles, and from the accumulated data curves were constructed giving the position of the antenna as a function of the incidence angle for different times. From these curves the electron density of the plasma was calculated as a function of time and distance from the axis. Measurements were made both with the beam in a plane containing the axis of the plasma cylinder and with the beam in a plane perpendicular to the axis. Good agreement was obtained between the different measurements, and it is concluded that the proposed techniques are satisfactory. The techniques can be improved by employing narrower microwave beams and shorter wavelengths. It is also possible to vary the wavelength instead of the incidence angle. Orig. art. has: 14 formulas and 12 figures.

SUB CODE: 20/ SUBM DATE: 22Feb65/ ORIG REF: 001/ OTH REF: 002

Card 2/2 UCR

L 10237-66 EWT(1)/ETC/EPF(n)-2/EWG(m) IJP(c) AT/GS

ACC NR: AT5028595 SOURCE CODE: UR/0000/65/000/000/0526/0532

AUTHOR: Dushin, L. A.; Kononenko, V. I.; Pavlichenko, O. S.; Nikol'skiy, V. K.; Brzhechko, L. V.

ORG: none

TITLE: Microwave and spectroscopic investigation of an electrodeless induction discharge

SOURCE: Konferentsiya po fizike plazmy i problemam upravlyayemogo termoyadernogo sinteza. 4th, Kharkov, 1963. Fizika plazmy i problemy upravlyayemogo termoyadernogo sinteza (Physics of plasma and problems of controllable thermonuclear synthesis); doklady konferentsii, no. 4. Kiev, Naukova dumka, 1965, 526-532

TOPIC TAGS: plasma diagnostics, plasma pinch, microwave plasma, microwave spectroscopy, gas discharge spectroscopy

ABSTRACT: Plasma heating experiments where conditions favorable to strong microwave emission occur are described. The apparatus used for production of microwaves is a theta-pinch device with maximum mirror magnetic field of $1.3 \cdot 10^{-6}$ a/m having a period of $8.6 \cdot 10^{-6}$ sec and employing high frequency preionization. Microwave and optical diagnostics were used to determine the plasma parameters. Three microwave signals with a wide range of frequencies (9.4 Gc, 37 Gc, 140 Gc) were used to probe the

Card 1/3

L 10237-66

ACC NR: AT5028595

plasma outside and within the theta coil region. It was established using microwave propagation perpendicular to the plasma (and magnetic field) axis that a plasma density higher than 2.4×10^{14} cm^{-3} exists for 6.0×10^{-5} sec. Density vs time plots are given for different capacitor voltages (driving the theta-pinch discharge). The measurements indicate that the plasma density outside the coil region decreases in accordance with a diffusion mechanism while the plasma inside the theta-coil region decreases due to some more rapid loss mechanism. The spectral measurements show that the hydrogen is highly ionized, radiating only at magnetic field minima. The impurity lines also appear at these minima, while at other times continuum radiation dominates. The charged-particle densities are shown to increase with the initial pressure as determined from the line width of H_β. In addition, electron temperature history was determined from observation of singlet and triplet lines of H_e which was

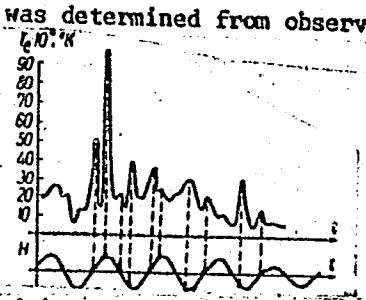


Fig. 1. Variation of T_e with time
$p = 1.3$ N/m^2 $U = 20$ kv

introduced in small quantities. Electron temperature (T_e) peaks occurred during both maximum electric and minimum magnetic fields (Fig. 1). Both microwave and spectral measurements were found to be consistent. Orig. art. has: 9 figures. [14]

Card 2/2

ACC NR: AT5028595

SUB CODE: 09 SUBM DATE: 20May65/ ORIG REF: 003/ OTH REF: 004/ ATD PRESS: 4163

0

Card 3/3

DUSHIN, L.A. [Dushyn, L.O.]; KONONENKO, V.I.; KOVTUN, R.I.; PRYVEZENTSEV, V.I. [Pryvezentsev, V.I.]; SKIBENKO, A.I. [Skybenko, A.I.]

Use of an interferometer and the microwave cut-off method in studying a plasma. Ukr. fiz. zhur. 10 no.9:977-984 S '65. (MIRA 18:9)

1. Fiziko-tekhnicheskiy institut AN UkrSSR, Khar'kov.

L 23567-66 EWT(1)/EPF(n)-2/ETC(f)/EWG(m) IJP(c) GS/AT

ACC NR: AT6008858 SOURCE CODE: UR/0000/65/000/000/0179/0188

AUTHOR: Dushin, L. A.; Kononenko, V. I.; Skibenko, A. I.

ORG: none

.70
B+1

TITLE: Using microwave refraction to determine the spatial density distribution of a plasma

SOURCE: AN UkrSSR. Magnitnyye lovushki (Magnetic traps). Kiev, Naukova dumka, 1965, 179-188

TOPIC TAGS: distribution function, microwave, plasma density, plasma physics

ABSTRACT: A method is proposed for using refraction of microwave beams to determine the spatial density distribution of a plasma on the basis of a single probing frequency for any moment of time. The method is applicable both to the case of a flat plasma and also for cylindrical plasma formations. In the case of a plasma with a plane or nearly flat surface, the spatial distribution may be found from the refraction of microwave beams which are incident at an angle to the surface of the plasma. There is a continuous change in the direction of the microwave beam due to the density gradient in the plasma. Analytical formulas are given for determining the density distribution from the trajectory of the beam in the plasma. When the plasma being studied is axially symmetric, the spatial density distribution may be determined from the refraction

Card 1/2

L 23567-66

ACC NR: AT6008858

of microwave beams in a plane normal to the axis of the discharge. The use of this method is discussed. The proposed methods may be improved by using microwave beams with small apertures and by operation on shorter wavelengths. Orig. art. has: 9 figures, 8 formulas.

SUB CODE: 20/ SUBM DATE: 20Oct65/ ORIG REF: 004/ OTH REF: 001

Card 2/2

L 23569-66 EWT(1)/EPF(n)-2/ETC(f)/EWG(m) IJP(c) AT/GS

ACC NR: AT6008860 SOURCE CODE: UR/0000/65/000/000/0198/0206

AUTHOR: Dushin, L. A.; Kononenko, V. I.; Pavlichenko, O. S.; Nikol'skiy, I. K.

ORG: none

55

B+1

TITLE: Bremsstrahlung of a θ-pinch plasma in the infrared spectral region

SOURCE: AN UkrSSR. Magnitnyye lovushki (Magnetic traps). Kiev, Naukova dumka, 1965, 198-206

TOPIC TAGS: bremsstrahlung, plasma pinch, electron temperature, plasma density, IR spectrum

ABSTRACT: The authors review the various methods used for determining the parameters of a plasma from the intensity of Bremsstrahlung. If the receiver design does not permit wavelength adjustment, the absolute intensity of the Bremsstrahlung in the plasma is measured in a definite wavelength range and an independent method is used for determining one of the parameters of the plasma, e. g. the electron temperature, and its variation with time. These data are then used as a basis for determining the plasma density and its variation. The possibilities of using this type of a receiver for plasma diagnosis are discussed. Experiments were conducted which showed that the continuous radiation of a plasma in the near infrared region may be measured simultaneously with the electron temperature to determine the density of the plasma and its

Card 1/2

L 25909-66

ACC NR: AT6008860

variation with time. The sensitivity of this method may be improved by reducing the band of the preamplifier of the recording system and by making the measurements on a plasma in which slower processes take place since this would allow covering a wider density range. Orig. art. has: 5 figures, 4 formulas.

SUB CODE: 20/ SUBM DATE: 20Oct65/ ORIG REF: 000/ OTH REF: 003

Card 2/2

L 39[illegible]-66 EWT(1)/EWP(m)-2/EPC(f)/EWG(m) IJP(c) AT/GS/GD

ACC NR: AT6008859 SOURCE CODE: UR/0000/65/000/000/0189/0198

AUTHOR: Dushin, L. A.; Kononenko, V. I.; Kovtun, R. I.; Privezentsev, V. I.; Skibenko, A. I.

ORG: none

TITLE: Studying a plasma by probing with microwaves

SOURCE: AN UkrSSR. Magnitnyye lovushki (Magnetic traps). Kiev, Naukova dumka, 1965, 189-198

TOPIC TAGS: microwave, plasma structure, plasma density, distribution function

ABSTRACT: The authors determine the spatial density distribution function for a plasma by comparing the average density measured by a microwave interferometer with the maximum density determined from the cutoff time of the microwave signals. These data were used for finding the recombination and diffusion coefficient and for estimating the electron temperature in the discharge. The experimental procedure is described in detail and the derivation of the analytical formulas used in the work is discussed. It is shown that curves for the average and maximum plasma densities or their logarithms as functions of time will coincide as long as there is no noticeable diffusion to destroy the initial distribution. The results confirm the data in the literature obtained by spectroscopic analysis of a Phillips discharge. Orig. art. has: 4 figures, 17 formulas.

SUB CODE: 20/ SUBM DATE: 20Oct65/ ORIG REF: 005/ OTH REF: 002

Card 1/1

L 03005-67

ACC NR: AP6033420

angular positions of the transmitter-receiver antennas relative to the cylinder axis. Spatial distribution densities calculated from the above data varied between 10^{12} and 10^{14} particles/cm^3. Orig. art. has: 10 figures and 11 formulas.

SUB CODE: 20/ SUBM DATE: 21Oct65/ ORIG REF: 005/ OTH REF: 002/ ATD PRESS: 5099

Card 2/2 awm

GODLEVSKIY, G.F.; GRECHANYUK, N.M.; KONONENKO, V.M.; LUPACH, V.S., red.

[Combat cruises; the squadron of the Black Sea Fleet in the Great Patriotic War] Pokhody boevye; eskadra Chernomorskogo flota v Velikoi Otechestvennoi voine. Moskva, Voenizdat, 1966. 241 p. (MIRA 19:1)

OLESNEVICH, L.O.[Olesnevych, L.O.], otv. red.; KOZLOVA, T.A., red.; KONONENKO, V.M., red.; KRIVO-KOBIL'SKIY, I.F. [Kryvo-Kobyl's'kyi, I.F.], red.; BARANOVA, N.P., red.izd-va; BEREZOVSKAYA, D.N.[Berezovs'ka, D.N.], tekhn. red.

[Production potentials of the western regions of the Ukrainian S.S.R.] Rezervy vyrobnytstva zakhidnykh raioniv Ukrains'koi RSR. Kyiv, Vyd-vo AN URSR, 1963. 152 p. (MIRA 17:3)

1. Akademiia nauk URSR, Kiev. Instytut suspil'nykh nauk.

NESTERENKO, V.A.; KHRABROV, N.I.; PAVLENKO, I.Ya.; KONONENKO, V.M.

Driving and supporting haulage workings in mines developing the Fominskoye layer. Ugol' Ukr. 7 no.6:16-18 Je '63. (MIRA 16:8)

1. Khar'kovskiy institut gornogo mashinostroyeniya, avtomatiki i vychislitel'noy tekhniki (for Nesterenko, Khrabrov). 2. Shakhterskiy trest ugol'nykh predpriyatiy kombinata Rostovugol' Ministerstva ugol'noy promyshlennosti SSSR (for Pavlenko). 3. TsNIIGoroshsheniye (for Kononenko).

KONONENKO, V.O.

Asymmetrical load cycles in resistance tests. Dop.AN URSR no.3: 25-38 '49. (MLRA 9:9)

1.Institut budivel'noi mekhaniki AN URSR. Predstaviv diysniy chlen AN URSR F.P.Belyankin.
(Strength of materials)

EWT(m)/EWP(w) EM

AP[illegible]

zh. Matematika, Abs. 8B221

[illegible], V. D.

TITLE: Some autonomous problems of the theory of nonlinear vibrations

CITED SOURCE: Tr. Mezhdunar. simpoziuma po nelineyn. kolebaniyam, 1961. T. 3. Kiyev, AN USSR. 1963 [illegible]

[illegible] vibration, dynamic [illegible] system, parametric excitation, autovibrational

TRANSLATION: Dynamic systems are investigated [illegible] system and a source of [illegible] influence [illegible] by that system, [illegible] the influence [illegible] the resonance [illegible] nonlinear restoring force, systems with [illegible] autovibrational systems, systems with many degrees of

Card 1/2

[illegible]

[illegible] ...ual examples of vibrational [illegible]
[illegible] are discussed. L. Bartha[illegible]

[illegible]

ACCESSION NR: AT4017765 S/3037/63/003/000/0151/0179

AUTHOR: Kononenko, V. O. (USSR)

TITLE: Certain autonomous problems in the theory of nonlinear oscillations

SOURCE: International Symposium on Nonlinear Oscillations. Kive, 1961. Prilozheniya metodov teorii nelineyny*kh kolebaniy k zadacham fiziki i tekhniki (Applying methods of the theory of nonlinear oscillations in problems of physics and technology); trudy* simpoziuma, v. 3. Kiev, Izd-vo AN UkrSSR, 1963, 151-179

TOPIC TAGS: automation, feedback, control system, control system oscillation, nonlinear oscillation, forced oscillation, parametric oscillation, energy source oscillatory system interaction

ABSTRACT: This report deals with the investigation of the properties of autonomous oscillatory systems. Each configuration considered consists of an oscillatory system and an energy source, the purpose of the research being to study the interaction between the two. The systems give rise to forced oscillations, parametric oscillations and auto-oscillations by virtue of the energy which they receive from the energy sources. Two types of interaction between the oscillatory system and the energy source may be envisioned. The first is characterized by the fact that the energy source is only negligibly influenced

Card 1/3

ACCESSION NR: AT4017765

by the system, whose motion it supports. The author maintains that in this case it is possible to disregard this influence entirely and consider that the motion of the oscillating system has no effect on the working mode of the energy source. The adoption of this point of view means that the following idealized property is ascribed to the energy source: the energy source affects the oscillatory system, but is not affected by it. The author arbitrarily calls a source, invested with this idealized property, an "ideal" source of energy. The second type of interaction between oscillatory system and energy source is distinguished by the fact that the energy source is noticeably affected by the system - any change in the parameters of the oscillations is accompanied by a change in the operating mode of the energy source. This interaction becomes particularly active under conditions in which the energy source has only a small reserve of power. This latter type of energy source (i.e., the type which is affected by the oscillatory system) the author terms "non-ideal". He notes that almost all real technical sources of energy may, under specific conditions, be placed in this latter classification. Oscillatory systems with non-ideal energy sources form autonomous systems; the oscillations of such systems become dependent on the properties of the (non-ideal) energy sources. The problem solutions, outlined in the paper, provide an idea of the properties of these systems. The basic problem is formulated in the following terms: what is the influence of the properties of the energy source on the mode of the oscillating system in the resonance region Results are obtained for some typical oscillating systems: linear systems with inertial and noninertial

Card 2/3

ACCESSION NR: AT4017765

excitation; systems with a nonlinear restoring force; systems with parametric excitation, and systems with self excitation. Analysis of the results shows that the stability of stationary oscillatory modes depends essentially on the properties of the energy source. The steepness of the energy source response curve at the representing point, the author claims, is the important parameter for the stability of stationary oscillations. In addition, the energy source properties determine the nonstationary oscillating modes and the kind of motion of the system, when a transition from an unstable stationary mode to a stable mode occurs. A method is proposed by the author for solving similar problems in cases where the oscillatory system has more than one degree of freedom. The report illustrates the solution of complex problems of the theory of nonlinear equations with the help of methods which not only are quite simple but also provide graphic results. Orig. art. has: 19 figures and 44 formulas.

ASSOCIATION: None

SUBMITTED: 00 DATE ACQ: 28Feb64 ENCL: 00

SUB CODE: CG, MM NO REF SOV: 022 OTHER: 004

Card 3/3

KONONENKO, V.O. (Moskva)

Vibrations of a solid near the center of mass. Izv.AN SSSR. Mekh. i mashinostr. no.4:23-30 Jl-Ag '63. (MIRA 17:4)

RONONENKO, V.V. (Moscow)

"On some modern problems of the theory of vibrations".

report presented at the 2nd All-Union Congress on Theoretical and Applied Mechanics, Moscow, 29 Jan - 5 Feb 64

[illegible]-65 EWT(m)/EWP(w) EM

[illegible] NR AM4047290 BOOK EXPLOITATION 10 B+1 S/

[illegible]enko, Viktor Olimpanovich

[illegible] systems with limited excitation (Kolebatel'nyye sistemy s [illegible] [illegible]zlarhdeniyem), Moscow, Izd-vo "Nauka", [illegible], [illegible] p. illus., [illegible] biblio.

[illegible] TAGS: oscillatory system, Sommerfeld effect, mathematics

TABLE OF CONTENTS (abridged):

Foreword -- 5
Introduction -- 9
[illegible] I. Simplest oscillating systems with a non-ideal energy source -- 22
[illegible] II. Nonlinear oscillating systems with one degree of freedom interacting with a non-ideal energy source -- 80
[illegible] III. Oscillating systems with many degrees of freedom interacting with non-ideal energy sources -- 208
Supplement -- 249

Card 1/2

L 47726-65

ACCESSION NR AM4047290

SUBMITTED: 17Apr64

SUB CODE: GP, MA

NO REF SOV: 073

OTHER: 004

Card 2/2

L 8530-66

ACC NR: AP5026927

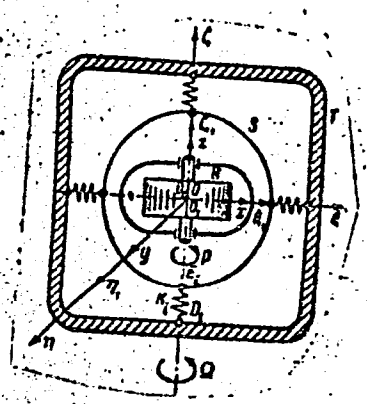


Fig. 1.

The generalized Euler equations and the various kinematic relations are written for the spring-mass model given in Fig. 2. The equations are simplified for a near resonance case $\omega_4 \approx 1/2\omega$ to yield the set of equations

$$\frac{dy_1}{dt} = \mu S_1 y_1, \quad \frac{d\beta_1}{dt} = 0, \quad \frac{dy_2}{dt} = \mu S_2 y_2, \quad \frac{d\beta_2}{dt} = 0, \quad \frac{dy_3}{dt} = -\frac{1}{2}\mu h_3 y_3, \quad \frac{d\beta_3}{dt} = 0$$

$$\frac{dy_4}{dt} = \mu(g_1 + g_2 \sin 2\beta_4 + g_3 \cos 2\beta_4)\, y_4, \quad \frac{d\beta_4}{dt} = \mu\sigma_4 + \mu(g_2 \cos 2\beta_4 - g_3 \sin 2\beta_4)$$

$$\frac{dy_5}{dt} = \mu S_5 y_5, \quad \frac{d\beta_5}{dt} = 0, \quad \frac{dy_6}{dt} = -\frac{\mu}{2} h_6 y_6, \quad \frac{d\beta_6}{dt} = 0.$$

Card 2/4

L 8930-66 EWT(d)/EWT(1)/EWT(m)/EWP(w)/EWP(k)/ETC(m) IJP(c) WW/EM

ACC NR: AP5026927 SOURCE CODE: UR/0373/65/000/005/0031/0037

44,55 44,55 40

AUTHORS: Ganiyev, R. F. (Moscow); Kononenko, V. O. (Moscow)

45

ORG: none

B

21, 44, 55

TITLE: On nonlinear oscillations of a solid body supporting a rotating rotor

SOURCE: AN SSSR. Izvestiya. Mekhanika, no. 5, 1965, 31-37

TOPIC TAGS: nonlinear mechanics, forced oscillation, free oscillation, stability criterion, Euler equation

16, 44, 55

ABSTRACT: The nonlinear oscillations of a solid body carrying a rotating rotor R (see Fig. 1) are studied analytically. The purpose of the investigation was to find the conditions which generate intensive body oscillations in the direction of the solid body's normal coordinate where no external perturbations exist. The rotor is assumed to rotate with constant speed p and to have a center of mass that coincides with the center of mass of the solid body S. The analysis is carried out by using movable coordinates $O_1\xi_1\eta_1\zeta_1$ with the following relations between the various inertial forces and moments

$$H_\xi = H_1\xi^{\cdot}, H_\eta = H_1\eta^{\cdot}, H_\zeta = H_1\zeta^{\cdot}, N_\theta = H_6\theta^{\cdot}, N_\psi = H_6\psi^{\cdot}, N_\varphi = H_6\varphi^{\cdot}.$$

Card 1/4

L 8930-66
ACC NR: AP5026927

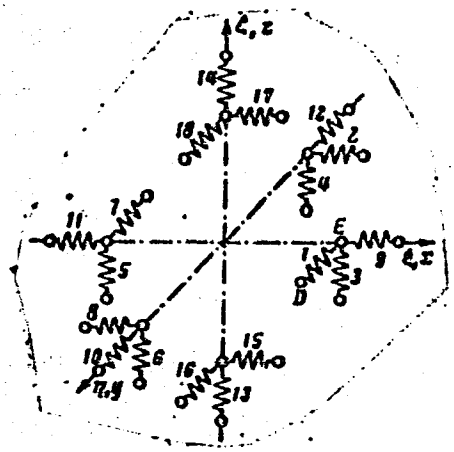


Fig. 2.

It is shown that conditions $y_3 = 0$ and $y_6 = 0$ are stable for $h_3 > 0$ and $h_6 > 0$ and $y_1 = y_2 = y_5 = 0$ are stable for negative values of S_1, S_2, S_5. The necessary and sufficient conditions for stability in $y_4 = 0$ are shown to be

$$\mu g_1 < 0, \quad \mu^2 (g_1^2 - g_2^2 - g_3^2 + e_4^2) > 0.$$

Card 3/4

L 8930-66
ACC NR: AP5026927

These stability criteria are reviewed for cases with and without body rotations Ω.
Orig. art. has: 17 equations and 2 figures.

SUB CODE: 20/ SUBM DATE: 10May65/ ORIG REF: 005

BC

Card 4/4

KONDENKO, V.M.

Regulating axial clearances along the shaft line in case of two thrust bearings. Sudostroenie no.7:69-70 Jl '65. (MIRA 18:8)

L 04210-67 EWT(1)/T/EWP(k)

ACC NR: AR6015875 (N) SOURCE CODE: UR/0275/65/000/012/V008/V008

43

AUTHOR: Kononenko, V. S.; Yakovlev, V. F.

B

TITLE: Improving the measurement accuracy of the damping of ultrasonic waves in liquids by the pulse method at low frequencies

9M 9M

SOURCE: Ref. zh. Elektronika i yeye primeneniye, Abs. 12V53

REF SOURCE: Sb. Primeneniye ul'traakust. k issled. veshchestva. Vyp. 20. M., 1964, 21-27

TOPIC TAGS: ultrasonic measurement, ultrasonic wave, fluid property, acoustic damping

ABSTRACT: In order to improve the accuracy of the measurement of ultrasonic damping at frequencies of 1—10 Mc, use is made of a mutually-inductive type of attenuator with small induction coils: emitting (18 loops of a copper wire 1 mm in diam.) and receiving (12 loops). Coil diam. is 18 mm. Matched impedance was set up in the receiving coil. At frequencies of 1—10Mc it is more convenient to employ a step ohmic attenuator on inductionless resistors, locating it in the cathode follower circuit, the high-ohmic input of which has low shunting of the quartz and the oscillator. The accuracy of the investigated attenuators at lf is within 0.02 db. [Translation of abstract] 2 illustrations and bibliography of 5 titles. O.K.

SUB CODE: 20

Card 1/1 pla

UDC: 534.286-8

KONONENKO, V.S.

Cholinesterase activity in cortical points of the cerebral hemispheres during the establishment of unilateral conditioned reflexes. Zhur.vys.nerv.deiat. 13 no.2:280-285 Mr-Ap'63. (MIRA 16:9)

1. Chair of Normal Physiology, Medical Institute, Lvov.
(CHLINESTERASES) (CEREBRAL CORTEX)
(CONDITIONED RESPONSE)