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the main burners. It was necessary to protect the super-heaters against excessive temperatures, as the ordinary super-heat temperature regulator is not effective during starting. The temperature differences obtained in the drums were practically the same in the two cases. The recommended curve of pressure rise during accelerated starting of a boiler type TP-230 with uniform rate of rise of saturation temperature of about 100°C per hour is given in Fig 3. The shorter starting-time reduced the fuel consumption from 18.5 to 14 tons of conventional fuel. Some of the investigations revealed differences of up to 100°C between the ends of the drum due to the presence of barriers inside it. A device was made to heat up the drum with steam from neighbouring boilers. The starting time of these boilers could then be reduced to 2 hours with a maximum temperature difference of 30°C in the drum. The super-heaters were cooled by condensate injection. The main difficulty was to maintain the super-heated steam temperature within bounds. The simplest method of protecting the super-heaters was to use the mill fan to

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Reducing the Starting-time of Boilers and Turbines

blow air into the furnace through windows above the burners and to blow down the super-heater with condensate. A graph of an accelerated start on a high-pressure drum-type boiler burning Moscow Basin coal is given in Fig 4. Firing was commenced with fuel oil. The greatest temperature difference on the drum was 70°C, and the fuel oil consumption was 2.5 tons less than usual. At present a lot of boilers are kept in hot reserve overnight. The best procedure for keeping boilers in hot reserve was sought by tests in which a high-pressure boiler was left connected to the steam main and fired by two fuel-oil nozzles. The draught fans and auxiliary equipment were stopped and the boiler worked on natural draught. A boiler in this condition can be brought on to load very quickly but it is rather wasteful of fuel. Tests were also made with a boiler left connected to the steam mains but unfired. Various measures were taken to retain heat in the boiler which was in reserve for four and a half hours. The steam temperature dropped from 500°C to 390°C but was restored to full temperature in about 15 minutes. Comparative data on thermal losses before improving the thermal insulation

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at one power station are given in Table 2. The work showed that a high-pressure boiler can be started up in two hours from the cold and in 45 minutes after being in reserve overnight without risk of damage and with considerable saving of fuel. Some two or three hours before commencing firing a cold boiler it is advisable to fill the drum with hot feed-water, so raising its wall temperature to 90 - 95°C. When the furnaces are forced for purposes of accelerated starting special attention must be paid to heating the screens uniformly; to this end a large number of burners must be used and they should be well distributed around the furnace. Despite earlier work the time required to start up a turbine remained excessive. For instance, according to the works' instructions a turbine type VK-100-2 takes 13.5 hours from the cold and a turbine SVK-150, 50 - 60 hours. Two methods were used to cut the time: accelerated starting with rated steam conditions, but quicker individual operations; and starting the turbine whilst raising steam in the boiler. After many tests made with thermo-couples fitted to turbines it became possible to

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Reducing the Starting-time of Boilers and Turbines

regulate the starts by the thermal conditions of the turbine rather than by a fixed time-table. According to the 1956 manufacturers' instructions the time required to start and put on load a turbine VK-100-2 was already cut to 9½ hours. Recent recommendations have cut this time by a further two hours, and the present conditions will be seen from the time chart in Fig 5. During 1957, tests were made on starting turbines in the Moscow power system whilst steam was being raised in the boilers. The circuits used to isolate a boiler-turbine unit are given in Figs 6 and 7. In other tests the turbine was started with steam of reduced temperature and pressure, derived from the normal steam mains. It was found possible to cut the turbine starting times to about half of the former values. Details are given of the starting times required after the turbine had been standing for various periods. It is particularly difficult to start a boiler-turbine set as a unit after standing 5 - 7 hours overnight, because the turbine and boiler cool at different rates. The risk of passing cold steam into a hot turbine can be overcome by first raising the temperature and pressure in the boiler

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

Reducing the Starting-time of Boilers and Turbines

somewhat. Unit starts with reduced steam conditions are now becoming fairly common. In making accelerated starts the condition of the thermal insulation on the turbine is very important. It should be possible to reduce still further the time required to start up boilers and turbines.

There are 7 figures, 2 tables, no literature references.

ASSOCIATION: MOSENERGO

1. Boilers--Operation 2. Turbines--Operation

Card 6/6

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, N.P., inzh.; KRYUKOV, A.I.

Concerning V.IU.Rubinov's article "A new regulating device for draft and blasting machines." Elek.sta. 33 no.12:85 D '62. (MIRA 16:2)

(Electric power plants) (Rubinov, V.IU.)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, O. D.

The ZHN-4,0 improved harvester. Mekh. sil'. hosp. 14 no.1: 18-19 Ja '63. (MIRA 16:4)

1. Glavnyy inzh. Poltavskogo territorial'nogo proizvodstvennogo kolkhozno-sovkhoznogo upravleniya.

(Mowing machines)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, Petr Ivanovich, prof., zasluzhennyy deyatel' nauki [1858-1934]; MERKOV, A.M., prof., red.; PRIVEZENTSEVA, A.G., red.; KAPRALOVA, A.A., tekhn.red.

[Problems of medical statistics] Voprosy sanitarnoi statistiki; izbrannye proizvedeniia. Pod red. A.M.Merkova. Moskva, Gosstatizdat TsSU SSSR, 1961. 421 p. (MIRA 15:5)
(RUSSIA—STATISTICS, MEDICAL)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

GUZMAN, A.; KURKIN, S.; MITROPOL'SKIY, A.

How to use vending machines for copybooks and pencils correctly.
Sov. torg. 33 no.11:47-52 N '59. (MIRA 13:2)
(Vending machines)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

POPKOVICH, Ye., inzh.; KURKIN, S., inzh.

Industrial methods of constructing heat systems. Na stroi.Ros. 3 no.6:20-21 Je '62. (MIRA 16:7)
(Chelyabinsk heating pipes)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KUMKIN, S. A. and PROKHOROV, N. N.

Ustanovka dlia nizkotemperaturnogo sniatiia ostatochnykh napriazhenii v svarnom shve. (Vestn. Mash., 1948, no. 9, p. 31-33)

Installation for low-temperature removing of residual stresses in a welded seam.

DLC: TN4,V4

SO: Manufacturing and Mechanical Engineering in the Soviet Union, Library of Congress, 1953.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, S. A., Engr

USSR/Metals - Welding

Oct 50

"Investigation of the Mechanical Properties of Steels Under the Temperature Conditions of a Simulated Welding Process," N. N. Prokhorov, Cand Tech Sci, S. A. Kurkin, Engr

"Avtogen Delo" No 10, pp 6-10

One of a series of works on improvement of welded structures, conducted in welding lab of Moscow Higher Tech School under supervision of Prof G. A. Nikolayev. Problem: to establish parameters which cause tendency of metals to hot cracks in welding process. Proves formation of hot cracks takes place at temperatures in region of solidus line and concludes that metallurgical modification of properties of steel may produce types of steel resistant to formation of hot cracks in welding.

PA 167T83

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, S. A.

KURKIN, S. A. -- "Prevention of Heat Cracks in Automatic Welding." Sub 27 Jun 52, Moscow Order of Labor Red Banner Higher Technical School imeni Bauman. (Dissertation for the Degree of Candidate in Technical Sciences).

SO: Vechernaya Moskva, January-December 1952

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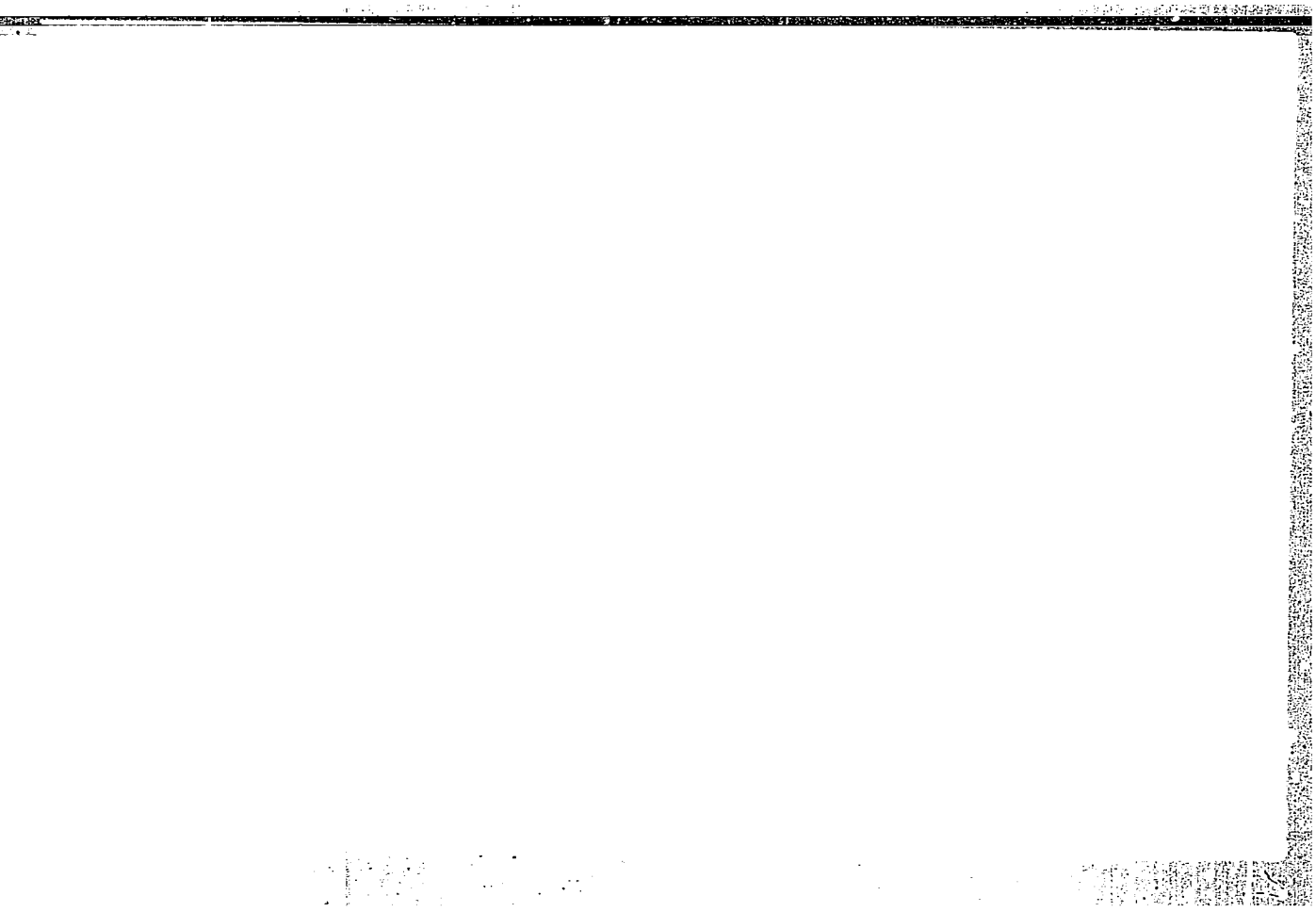
"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7



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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, S.A., kandidat tekhnicheskikh nauk.

Measures against the formation of hot cracks during welding.
Vest.mash.34 no.1:79-82 Ja '54. (MLRA 7:2)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche im.Baumana.
(Electric welding)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, S.A.

SOV/137-58-8-17061

Translation from Referativnyy zhurnal, Metallurgiya, 1958, Nr 8, p 123 (USSR)

AUTHOR: Kurkin, S.A.

TITLE: Elimination of Welding Deformations in Light Sheet-metal Components by Means of Subjecting the Area of the Weld to Rolling (Ustraneniye svarochnykh deformatsiy tonkolistovykh elementov putem prokatki shva i okoloshovnoy zony)

PERIODICAL: V sb. Prochnost' i avtomatizatsiya svarki (VMTU, 71). Moscow, Mashgiz, 1957, pp 29-38

ABSTRACT: A method developed to eliminate warping of light sheet metal components of simple shapes (panels, boiler shells) involves the passing of the weld area through a rolling (R) device. The tests were carried out on 250x1000 mm specimens made of steel EI-654 1, 1.5, and 2 mm thick. The extent of correction of deformations (D) produced by various welding procedures was investigated as a function of the compressive force acting upon the rolls. A diagram of the R mechanism is shown together with an over-all view of the R device. The maximum deviation of the metal sheet from the plane of the plate was determined as a function of the number of passes through the rolls.

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SOV/137-58-8-17061

Elimination of Welding Deformations in Light Sheet-metal (cont.)

The effect of R on the mechanical properties of welded connections and on the residual stresses (RS) due to welding and R was studied. In order to determine the RS and D, 400x240x2 mm specimens were butt-welded by means of a manual arc-welding unit and UONI-nzh electrodes. D was measured over a base length of 100 mm. The RS were determined by the method of cutting out a specimen and measuring the increase in the base length produced by the elimination of the bonds with the surrounding metal. σ_b and the flanging angle were determined by means of standard specimens. It was established that R eliminates warping and, to a great extent, returns the weldment to its original linear dimensions; compressive stresses appear in the weld and in the area immediately surrounding it; the magnitude of maximum tensile stresses is diminished to a small fraction. The process of R is accompanied by a certain reduction in ductility. It is pointed out that powerful seam welding machines may be employed for R provided the Cu rollers are replaced by steel rollers. The method whereby welding D are eliminated by R of the welded seam and the area around it makes it possible to mechanize the difficult operation of manual straightening.

V.V.

1. Sheets--Welding 2. Sheets--Deformation 3. Welds--Processing 4. Rolling mills--Performance

Card 2/2

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, S.A., dots., kand.tekhn.nauk; VINOKUROV, V.A., inzh.

Volumetric welding stresses in very thick butt joints. Nauch. dokl.vys.shkoly; mash.i prib. no.1:124-134 '58.
(MIRA 12:1)

1. Predstavleno kafedroy "Svarochnoye proizvodstvo" Moskovskogo vysshego tekhnicheskogo uchilishcha imeni N.E. Baumana.
(Electric welding) (Strains and stresses)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

Kurkin, S. A.

135-58-4-9/19

AUTHORS: Kurkin, S.A., Candidate of Technical Sciences, and Vinokurov, V.A., Engineer

TITLE: Deformations of Thin-Sheet Elements in Welding, and How to Avoid Them (Deformatsii tonkolistovykh elementov pri svarke i bor'ba s nimi)

PERIODICAL: Svarochnoye Proizvodstvo, 1958, Nr 4, pp 28-31 (USSR)

ABSTRACT: Welding deformations in thin-sheet elements can be classified as: a) shrinkage deformation, b) local warping, and c) general warping. The authors suggest an energy method of pre-calculating the general warping in a particular case of welding two sheets of equal dimensions. The presented formulas permit the estimation of the influence of the basic factors on the magnitude of linear shrinkage of the seam and the warping of thin-sheet elements. The theoretic data was verified by experiments. It is recommended to use a subsequent as well as a preliminary rolling to eliminate deformations produced by annular welds. This rolling method was described previously [Ref 1]. The pressing of weld spots is another effective method of eliminating deformation in spot weld-

Card 1/2

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Deformations of Thin-Sheet Elements in Welding, and How to Avoid Them

ing. The article includes a brief description and a schematic drawing of a simple rolling machine devised at the Svarochnaya laboratoriya MVTU imeni Baumana (Welding Laboratory MVTU imeni Bauman).
There are 3 figures, 4 graphs, 1 table, 1 schematic drawing and 5 Soviet references.

ASSOCIATION: MVTU imeni Bauman

AVAILABLE: Library of Congress

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

IKurkin, S. A.

21(4) PHASE I BOOK EXPLOITATION SOV/2583

International Conference on the Peaceful Uses of Atomic Engergy. 2nd, Geneva, 1958.

Doklady sovetskikh uchenykh; yadernyye reaktory i yadernaya energetika. (Reports of Soviet Scientists; Nuclear Reactors and Nuclear Power) Moscow, Atomizdat, 1959. 707 p. (Series: Its: Trudy, vol. 2) Errata slip inserted. 8,000 copies printed.

General Eds.: N.A. Dollezhal, Corresponding Member, USSR Academy of Sciences, A.K. Krasin, Doctor of Physical and Mathematical Sciences, A.I. Leypunskiy, Member, Ukrainian SSR Academy of Sciences, I.I. Novikov, Corresponding Member, USSR Academy of Sciences, and V.S. Fursov, Doctor of Physical and Mathematical Sciences; Ed.: A.P. Alyab'yev; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This book is intended for scientists and engineers engaged in reactor designing, as well as for professors and students of higher technical schools where reactor design is taught.

COVERAGE: This is the second volume of a six-volume collection on the peaceful use of atomic energy. The six volumes contain the reports presented by Soviet scientists at the Second International Conference on Peaceful Uses of Atomic Energy, held from September 1 to 13, 1958 in Geneva. Volume 2 consists of three parts. The first is devoted to atomic power plants under construction in the Soviet Union; the second to experimental and research reactors, the experiments carried out on them, and the work to improve them; and the third, which is predominantly theoretical, to problems of nuclear reactor physics and construction engineering. Yu. I. Koryakin is the science editor of this volume. See SOV/2081 for titles of all volumes of the set. References appear at the end of the articles.

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18(7) SOV/125-12-6-3/14

AUTHOR: Kurkin, S.A. and Fishkis, M.M., Candidates of Technical Sciences, Vinokurov, V.A., Gazaryan A.S., Engineers

TITLE: Measuring of Deformation and Stress at the Welding of Elements with great Thickness made of St. 3

PERIODICAL: Avtomaticheskaya svarka, 1959, Vol 12, Nr 6 (75) pp 22-27 (USSR)

ABSTRACT: The article presents the description of experiments on the definition of quantity and character of residual stress in steel-samples of great thickness, welded the "electric slag" way. The experiments were made by the welding laboratory of MVTU imeni Baumann, together with the Moscow automobile plant imeni Likhachev. The experiments were made to study: 1) The development of deformations in large size welded joints in course of time, 2) The field of residual stress in buttwelds of elements with great thickness, 3) The taking down of residual stress by heat treatment. The deformations in course of time were produced by a mechanical press

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Measuring of Deformation and Stress at the Welding of Elements with great Thickness made of St.3

with a strength of 3.5 thousand tons (fig. 1 and 2). The material of all samples was a low carbon steel of type V St 3 with following chemical compounds: 0.14-0.22% C, 0.40-0.65% Mn, 0.12-0.30% Si, not more than 0.055% S and less than 0.05% P. The mechanical qualities of the steel were: σ_R = 38-41 Kg/mm^2, σ_T = 24 Kg/mm^2 and δ = 27%. The experimental investigation of triaxial stress showed, that the theoretical calculation (Ref. 2) does not correspond with the results of the experiment. A deformation along the welds in not loaded constructions, made of elements of great thickness, during a considerable length of time (ca. 60 times within 2 months) was not observed. It is difficult to say anything about the possibilities of deformation over longer periods of time. The average stress σ_{zo} in all bands of unannealed samples was not higher than 300 Kg/cm^2 (Fig 3). There are 3 diagrams

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SOV/125-1?-6-3/14

Measuring of Deformation and Stress at the Welding of Elements with great Thickness made of St. 3

1 graph, 1 equation and 7 references, 5 of which are Soviet and 2 English

ASSOCIATION: MVTU im. Baumana (MVTU imeni Bauman)(Kurkin, Vinokurov,Gazaryan); avtozavod im. Likhacheva (Automobile Plant imeni Likhachev)(Fishkis).

SUBMITTED: February 25, 1959

Card 3/3

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

S/135/60/000/008/005/010
A006/A002

18.7200

AUTHORS: Kurkin, S.A., Candidate of Technical Sciences, Vinokurov, Candidate of Technical Sciences, Parakhin, V.A., Engineer

TITLE: Strengthening of Weld Joints by Rolling the Seam With Rollers

PERIODICAL: Svarochnoye proizvodstvo, 1960, No. 8, pp. 15-16

TEXT: At the welding laboratory of MVTU imeni Bauman a method was developed to raise the mechanical properties of butt welds in cold hardened aluminum-alloys. The welds are strengthened by subjecting the seam to pressure rolling with steel rollers. Although merely the seam is rolled, the strengthening effect is extended to a considerable portion of the zone adjacent to the seam which underwent a tempering process during welding. The authors discuss the mechanism of strengthening the weld joints by rolling and present experimental data, illustrating the strengthening process. During rolling, the metal is shifted to the sides. Measurements show that the displacement of the rolled metal is not an accidental factor, but represents a regularity revealing the mechanism of strengthening in the zone adjacent to the seam. The rolling of the metal is accompanied by a considerable plastic expansion of the metal in the plane and may be described as an elongation

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A006/A002

Strengthening of Weld Joints by Rolling the Seam With Rollers

process of the rolled zone. An equation is given expressing the shifting of metal in the zone adjacent to the seam. It is used to plot a theoretical curve which is in a satisfactory agreement with experimental data. The width of the zone of shifting and the magnitude of shifting increase with a higher pressure of rolling. They are accompanied by a proportional increase in the metal hardness in the zone of tempering and by a metal expansion in the zone of strengthening. Tests proved that the strength of the weld increased proportionally to the hardness of the zone adjacent to the weld. A direct dependence was established between the shifting of metal and the strength of the weld joint. Thus the strengthening of the weld may be checked by measuring the shift with a portable optical instrument. The degree of strengthening may also be checked by the thickening of the metal in the zone adjacent to the seam which indicates the magnitude of the plastic deformation. Further development of the method will permit the application of the described technological process for the strengthening of welds in aging alloys. There are 7 figures.

ASSOCIATION: MVTU imeni Baumana (MVTU imeni Bauman)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

NIKOLAYEV, G.A.; VINOKUROV, V.A.; GAZARYAN, A.S.; KURKIN, S.A.

Formation of inherent stresses in welding very thick metals.
Avtom.svar. 13 no.6:3-11 Je '60. (MIRA 13:7)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche im. Baumana.
(Plates, Iron and steel--Welding)
(Thermal stresses)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

AKULOV, A.I.; YEVSEYEV, G.B.; KAGANOV, N.L.; KURKIN, S.A.; LYUBAVSKIY, K.V.; MORDVINTSEVA, A.V.; NAZAROV, S.T.; NIKOLAYEV, G.A., doktor tekhn.nauk, prof., zasluzhennyy deyatel' nauki i tekhniki; OL'SHANSKIY, N.A.; CHANGLI, I.I., red.; STEPANCHENKO, N.S., red. izd-va; EL'KIND, V.D., tekhn.red.

[Current welding practices] Sovremennoe sostoianie svarochnoi tekhniki. Sovmestnoe izdanie Mashgiz, SNTL, 1961. 318 p. (MIRA 14:6)

(Welding)

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27811
S/081/000/101/009/015
D256/D304

AUTHORS: Kurkin, S.A., Candidate of Technical Sciences, Docent and Vinokurov, V.A., Candidate of Technical Sciences

TITLE: Removal of distortion from thin-gage welded fabrications by rolling

PERIODICAL: Vysshaye tekhnicheskoye uchilishche. Trudy. Svarka tsvetnykh splavov, redkikh metallov i plastmass, no. 101, 1961, 186 - 196

TEXT: Welding distortion increases with decreasing metal gage, increasing yield stress, decreasing elasticity modulus, and increasing linear energy of welding. Development of this method of removing welding deformation began in 1955, and also passed industrial trials. It consists in the creation of plastic strains opposite to those which occurred in welding. Rolling could be confined to the weld and heat-affected zone since it was only here that plastic deformation occurred on welding. On rolling with narrow steel rolls 5 - 15 mm in width a local, uniform, static upsetting of metal was

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Removal of distortion from ...

created, causing elongation of metal longitudinally and transversely, and either reducing the welding stresses to zero, or causing them to become mutually balanced in a comparatively narrow region. Alternatively, only part of the zone plastically deformed by welding was rolled which developed compression stresses to balance the tensile stresses in the unrolled regions. This was useful if e.g. either the weld or the sheets adjacent to it were inaccessible for rolling. In order to be able to apply the process to different materials and components it is necessary to investigate the effect of various factors on plastic deformation and establish certain basic principles. Rolling conditions were investigated on CT-3 (ST-3), ЭИ654 (EI654), СН-2 (SN-2) steels, BT (VT), and [illegible]T-4 titanium alloys, AMг6 (AMg6) and Д-20 (D-20) aluminum alloys, and other materials, with specimens 400 x 100 mm. The latter were welded in a seam-welding machine along the whole length of the middle, creating residual tensile stresses close to the yield stress and then rolled under various conditions and the residual stresses determined by cutting into strips. This showed that for each metal with a given metal thickness and roll dimensions there was a certain

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Removal of distortion from ...

roll pressure, p_0, at which the residual stresses could be reduced to zero. The pressure was strongly influenced by the yield point and elasticity modulus of the material. Optimum rolling conditions, asestablished above, were examined for welded specimens 500 - 1000 mm long. Departure of the sheets from flatness was taken as a measure of the distortion before and after rolling, and the results of the above procedure were justified. To avoid the need for experimental determination of optimum rolling conditions, particularly roll pressure, an approximate formula was derived

$$\frac{p^2}{b^2} = \frac{6.7\ dh\sigma_{0.2}(\sigma_{end} - \sigma_{0.2})^2(\sigma_{in.} - 1.5\sigma_{end} + 0.5\sigma_{0.2})}{D(0.7\sigma_{0.2} + 0.3\sigma_{in.})}, \quad (1)$$

where p - roll pressure, k; b - width of roll waist, cm; d - roll diameter, cm; h - metal thickness in rolling zone, cm; $\sigma_{0.2}$ - proof stress of rolled material, k/cm^2; σ_{in} - initial stress in metal before rolling, k/cm^2; σ_{end} - stress in metal after rolling, k/cm^2;

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Removal of distortion from ...

E - modulus of elasticity, k/cm^2. In this way the rolling conditions, defined by roll pressure, thickness of zone of welded joint subjected to rolling, and roll dimensions could be determined by two processes. 1) First method: If no data were available then formula (1) would have to be used to determine p, putting $\sigma'_{end} = 0$, since this would be desired. An approximate value would be given to σ_{in}, usually $\sigma_{0.2}$, although σ_{in} could in fact be higher or lower than this. Therefore

$$p_o = b \sqrt{\frac{10{,}1\ dh\sigma^3_{0.2}}{E}} . \qquad (2)$$

(In a seam weld h = 2 x sheet thickness. For an arc weld h = thickness). 2) Second method: If some data were available, then the following relationships could be used to transfer from one case to another.

$$\frac{p_{01}}{p_{02}} = \frac{\sqrt{d_1}}{\sqrt{d_2}} \cdot \left(\frac{\sigma_{0.2(1)}}{\sigma_{0.2(2)}}\right)^{3/2} = \frac{\sqrt{E_2}}{\sqrt{E_1}},$$

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Removal of distortion from ...

(other things being equal). It was necessary to roll a weld or heat affected zone from every side. Normally this required three passes. If the zone of plastic deformation produced by welding was very wide it was necessary to widen the rolled zone or confine it to three passes at pressures greater than p_0. In the same way seam welds were corrected by only 1-2 passes on the overlap. With rolling along the weld reinforcement the pressure used is the same as for the heat-affected zone. With hardened or age-hardened materials it should be remembered that the yield stress of the weld and tempered zone alongside it can be very different from the yield stress of the material in the initial condition. Sometimes rolling according to the conditions did not give adequate correction and repeated rolling was required. To consider the effect of repeated rolling, in Eq. (1) in place of σ_{in} would be inserted the σ_{end} of the previous pass. The change of residual stress is shown with a number of passes along the same line and at constant roll pressure. If a large [redacted] of further plastic deformation is required it will be necessary to obtain this by increasing the pressure rather than by re-

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Removal of distortion from ...

peated rolling. Careful jigging of components before welding is vital in order to take full advantage of mechanical straightening by rolling. With the presence of a number of welds in the component, it is advisable to consider an expedient sequence of welding and levelling operations, on the following bases: 1) If welding of one of the joints does not impair the quality of fitting-up of the second, then correction can be carried out after welding both joints; 2) If welding the first joint impairs fitting-up the second, then one should a) either carry out levelling after setting up both joints and welding the first, b) or set-up, weld and level the second joint after welding and levelling the first. A quantity of mechanical test data is presented to show that rolling improves strength and fatigue properties in most methods, but tends to reduce bend properties slightly, only markedly so in the case of a steel weld bent along the weld; generally reduction in plastic properties does not exceed 40 %. Equipment for rolling should have (a) drive on one roll; (b) controlled pressure force up to 5T; (c) rolling speed 1-3 m/min. Machines of this type are being produced and further developed. There are 6 figures, 1 table and 2 Soviet-bloc references.
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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, Sergey Aleksandrovich, kand. tekhn. nauk, dots.; MEL'NIK, V.I., inzh., retsenzent; IONOV, P.M., inzh., red.; SMIRNOVA, G.V., tekhn. red.

[Technological processes in manufacturing welded structures; an atlas of drawings] Tekhnologiia izgotovleniia svarnykh konstruktsii; atlas chertezhei. Moskva, Mashgiz, 1962. 152 p. (MIRA 15:7)

(Machine-shop practice) (Welding)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

S/775/62/002/000/010/011

AUTHOR: Kurkin, S. A.

TITLE: Mechanization of warp-removal processes in welding.

SOURCE: Avtomatizatsiya protsessov mashinostroyeniya. t. 2: Goryachaya obrabotka metallov. Moscow, Izd-vo AN SSSR, 1962, 233-240.

TEXT: The paper submits that warping deformations occurring as a result of the welding (WG) of thin-sheet structures can be eliminated mechanically by rolling the near-weld zone. It is anticipated that this method, which has been successfully employed in the aviation industry, can be applied elsewhere, for example, in the RR-car- and ship-building industry. The immediate task is to develop means for rolling the near-weld zone directly downstream from the arc or the rolls of the contact-WG machine. Basically, the warping deformations incurred in the WG of sheet metal increase with decreasing sheet thickness and with increasing yield limit of the welded metal. The local deformation must be reversed by another deformation of opposite sign, namely, an elongation. Rolling with narrow steel rolls 5-15 mm wide under pressure produces a local reduction with attendant longitudinal elongation and stress and strain release throughout the entire part affected. This method has been developed at the MVTU (Moscow Higher Technical School) imeni Bauman, beginning in 1955, and is now recommended as an effective and highly productive method to

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overcome WG deformations. Comparative stress distribution graphs show that rolling of the weld itself reverses the sign of the prevailing stresses but does not eliminate them; rolling of the near-weld zone removes the residual stresses almost totally. Another graph shows that the warping of a welded sheet is almost totally removed by three passes between rolls (over the weld and on either side of it). Analogous results obtained upon WG alone and WG followed by rolling in a circular thin (1.5-mm) shell are also shown. Inasmuch as it is not feasible to roll some welded shells, preliminary rolling can be applied to produce an advance deformation which subsequent WG can be expected to reduce to near-zero (results shown graphically). Arc-welded joints without addition must be rolled 3 times with narrow rolls (once on the weld, twice along it) or once with a heavily compressed wider roll encompassing the full zonal band. Arc-welded joints with addition should be rolled on the weld and alongside it or alongside it only. Roller-welded joints can be rolled once or twice on the weld itself. Automatically-welded joints are easier to improve than manually welded joints. The method should not be expected to achieve correction of incorrectly welded assemblies (sheets warped prior to welding, etc.). In structure with multiple welds any deformations caused by a precedent weld should be eliminated by rolling before a subsequent weld is made, if the deformation caused by the first weld would result in a faulty assemblage of the parts for the second weld. The author tested the effect of rolling pressure, size of rolls, number

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of passes, and mechanical properties of the welded materials on planar and real-shape specimens. Eleven sets of experiments are described and summarized in a full-page table. Errors committed by rolling with excessive pressure can be corrected, with considerable difficulty, by rewelding over the rolled area. A "learning" procedure for materials of unknown behavior, consisting of flat-plane- and real-shape-specimen WG and rolling, is described. The equipment required is simple; a regulatable force of 4 tons and a rolling speed of 1-3 m/min are needed. Two types of machines have been developed. The first machine, a simple device for the rolling of plane and annular-shell material is not described; it is used at the MVTU for experimentation and teaching. The second, a universal machine, is shown in an exploded perspective view. The rolls can be oriented through 90° to permit rolling of annular welds and of longitudinal welds. Roll pressure is provided by a pneumatic cylinder. A gearbox affords several speeds ranging from 0.5 to 2.0 m/min. This machine was constructed at one of the aircraft factories and is used in the correction of weld deformations in thin-sheet aircraft structures. The method is applicable to materials welded in a work-hardened state, since the rolling re-establishes the surface hardening. Additional work is required to develop a coordinated method for roll-straightening directly upon completion of the welding process. There are 4 figures and one table; no references.

ASSOCIATION: None given.

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KURKIN, S. A., kand. tekhn. nauk; GUAN' TSYAO [Kuan Ch'iao], inzh.

Relieving residual welding stresses in thin-sheet titanium alloy specimens. Svar. proizv. no.10:1-5 O '62. (MIRA 15:10)

1. Moskovskoye vysshaye tekhnicheskoye uchilishche im. Baumana.

(Thermal stresses) (Titanium—Welding)

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I003/I203

AUTHOR: Kurkin, S.A., Cand. Techn. Sciences and Kuan-Ch'iao, Ingegneur

TITLE: Removal of weld deformations in thin sheet elements of OT4-1 and VT5-1 titanium alloys, by rolling

SOURCE: Moscow. Vysshoye tekhnicheskoye uchilishche. [Trudy] no. 106, 1962. 173-180. Svarka tsvetnykh splavov i nekotorykh legirovannykh staley

TEXT: Rolling of the welds is a very effective means of removing warpage in welded sheets of the above alloys. In this work the pressure of the rollers was calculated from the following formula:

$$Po = b\sqrt{\frac{10.1.d.h\sigma^3_{0.2}}{E}}$$

Its optimal value is 1000 kg/mm^2 for 0.8 mm OT4-1 sheets and 1200 kg/mm^2 for 1.0 mm BTS-1 (VT5-1) sheets. The residual stresses in the welds are 3660 kg/mm^2 for 0.8 mm OT4-1 sheets and 4660 kg/mm^2 for 1.0 mm VT5-1 sheets. There are sharp transitions from the residual tensile stresses in the welds to residual compression stresses in the adjacent zones of both alloys. There are 5 figures.

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PARAKHIN, V.A., kand. tekhn. nauk; FROLOV, V.V., dots., kand.tekhn. nauk; SHORSHOROV, M.Kh., dots., kand. tekhn. nauk; GOSPODAREVSKIY, V.I., inzh.; SUBBOTIN, Yu.V., inzh.; KURKIN, S.A., dots., kand. tekhn. nauk; VINOKUROV, V.A., dots., kand. tekhn. nauk; KAGANOV, N.L., dots., kand. tekhn. nauk; SHASHIN, D.M., kand. tekhn. nauk; AKULOV, A.I., dots., kand. tekhn. nauk; NAZAROV, S.T., dots., kand. tekhn. nauk; YEVSEYEV, G.B., dots., kand. tekhn. nauk; NIKOLAYEV, G.A., prof., doktor tekhn. nauk, red.; TITOVA, V.A., red.; FUFAYEVA, G.I., red.; CHIZHEVSKIY, E.M., tekhn. red.

[Laboratory work on welding] Laboratornye raboty po svarke. Moskva, Rosvuzizdat, 1963. 274 p. (MIRA 16:8)

1. Nauchno-pedagogicheskiy kollektiv Kafedry svarochnogo proizvodstva Moskovskogo vysshego tekhnicheskogo uchilishcha (for all except Nikolayev, Titova, Fufayeva, Chizhevskiy).
2. Zaveduyushchiy kafedroy "Mashiny i avtomatizatsiya svarochnykh protsessov" Moskovskogo vysshego tekhnicheskogo uchilishcha (for Nikolayev).

(Welding—Study and teaching)

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

ACCESSION NR: AP4029382 S/0135/64/000/004/0007/0010

AUTHOR: Kurkin, S. A. (Candidate of Technical Sciences)

TITLE: Evaluation of the properties of welded joints of pressure vessels made of super-strong materials

SOURCE: Svarochnoye proizvodstvo, no. 4, 1964, 7-10

TOPIC TAGS: welding seams, deformation, stress

ABSTRACT: This paper deals with the problem of reliability of welded joints in pressure vessels made of materials with a strength of 180-200 kg/mm^2. The author proposes a three-step method for testing welded joints in such materials. The first step consists of simple tests of mechanical properties and metallographic analyses. The obtained data are used in evaluation of production processes and technics used. The second step consists of more complex tests simulating the actual service conditions of the welded joint for the purpose of obtaining a detailed evaluation of effects of various factors on strength and ductility of joints under conditions of biaxial tension. Two devices for bulging test of base

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ACCESSION NR: AP4029382

metal and welds in 3 and 5 mm sheets with a tensile strength of 200 kg/mm^2 and an elongation of 10% developed in MVTU are shown and described. The third step consists of checking one or two selected types of technological processes by way of testing mockup vessels with pressure up to the point of rupture. The author concluded that biaxial tension tests of sheet samples by hydrostatic pressure simulate to a certain degree stress condition existing in a pressure vessel and are therefore recommended. How close the test conditions approach actual operating conditions requires further research. Orig. art. has: 9 figures, 2 tables, and 5 formulas.

ASSOCIATION: MVTU im. Baumana

SUBMITTED: 00 ENCL: 00 SUB CODE: MM

NO REF SOV: 002 OTHER: 001

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[illegible] for testing models of welded [illegible] [illegible] conditions of cl-

Source: Sverochnoye proizvodstvo, no. 5, 1965, 9-11

[illegible] cylindrical shells, this val[illegible] [illegible] strength.

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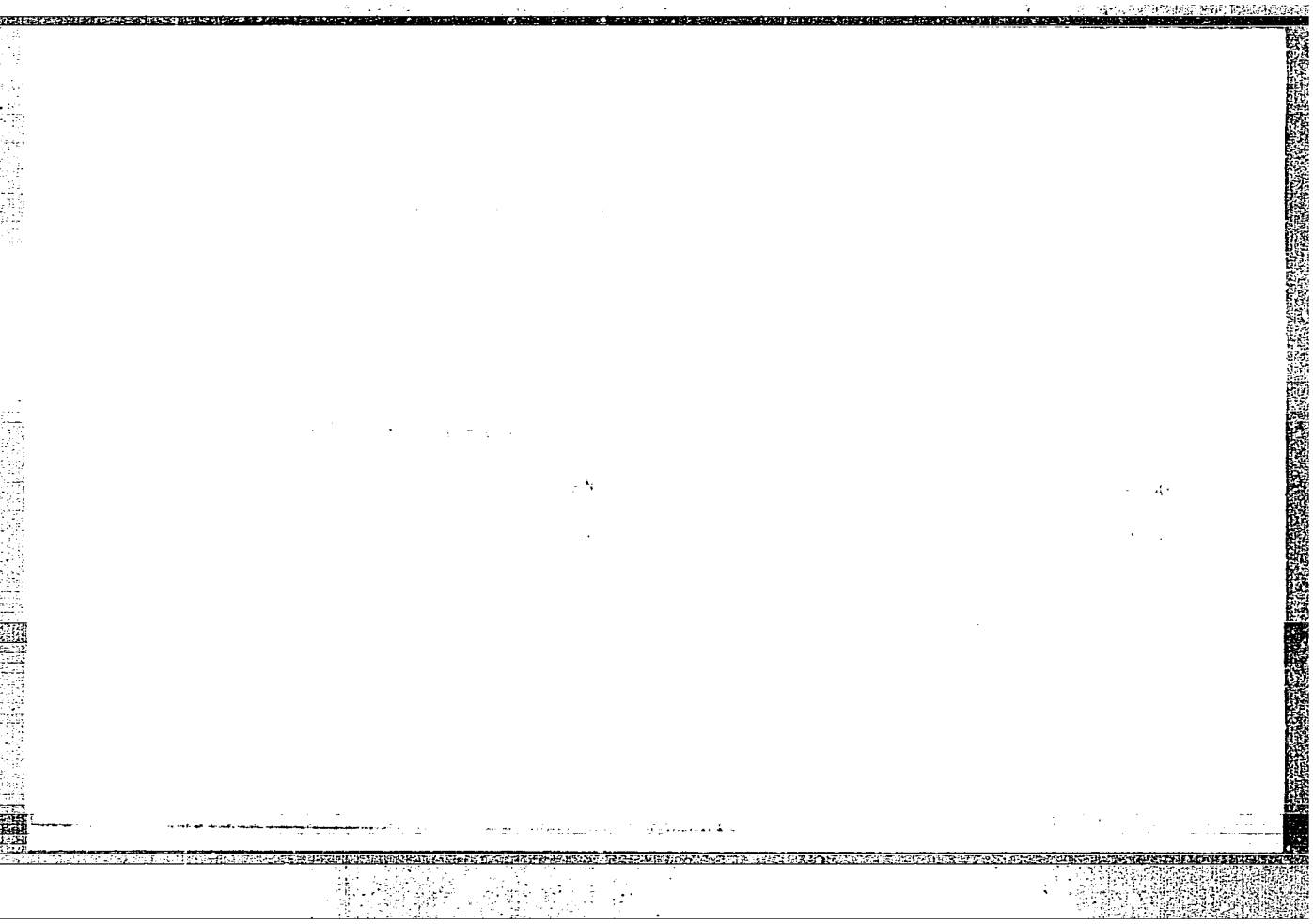

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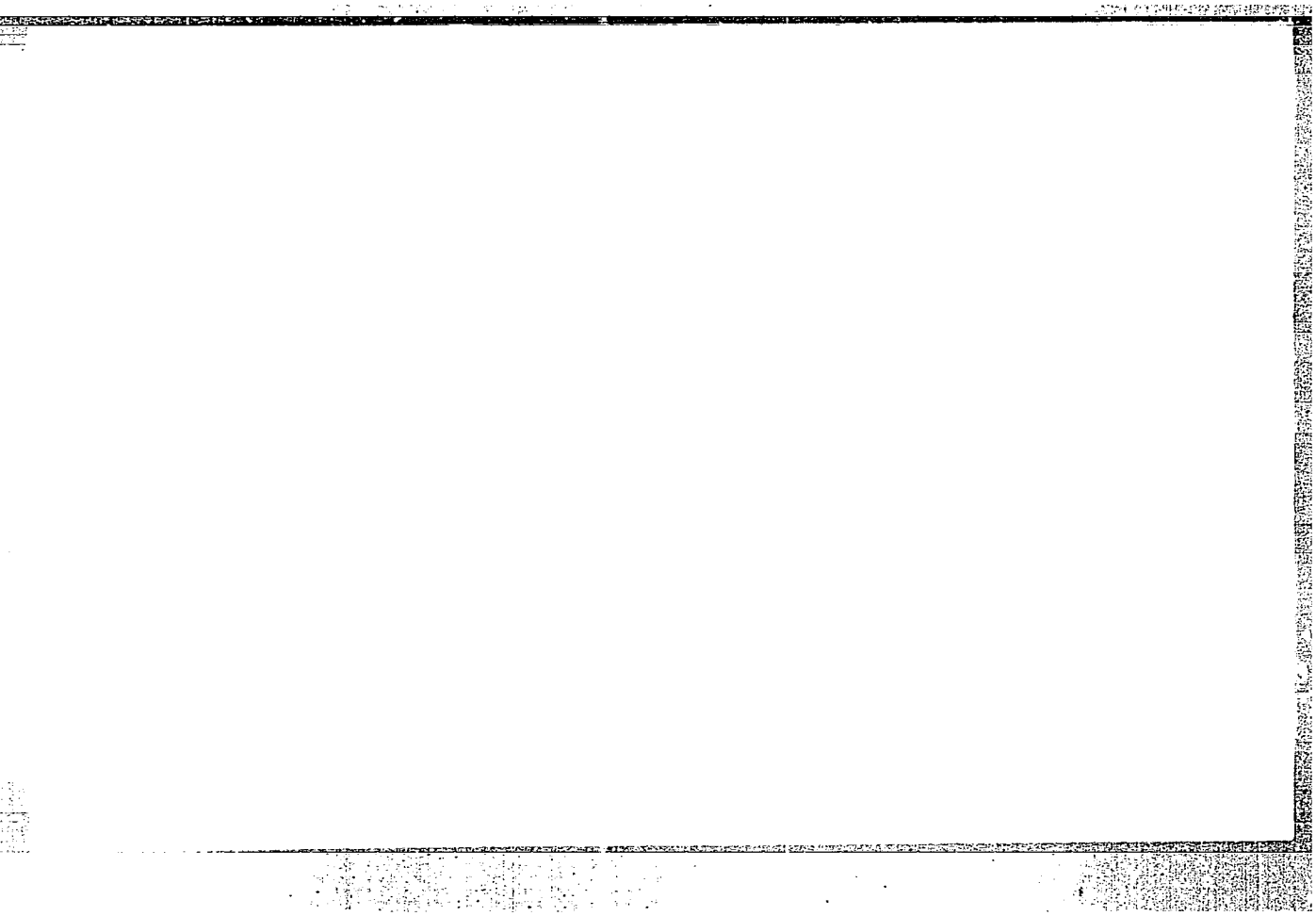

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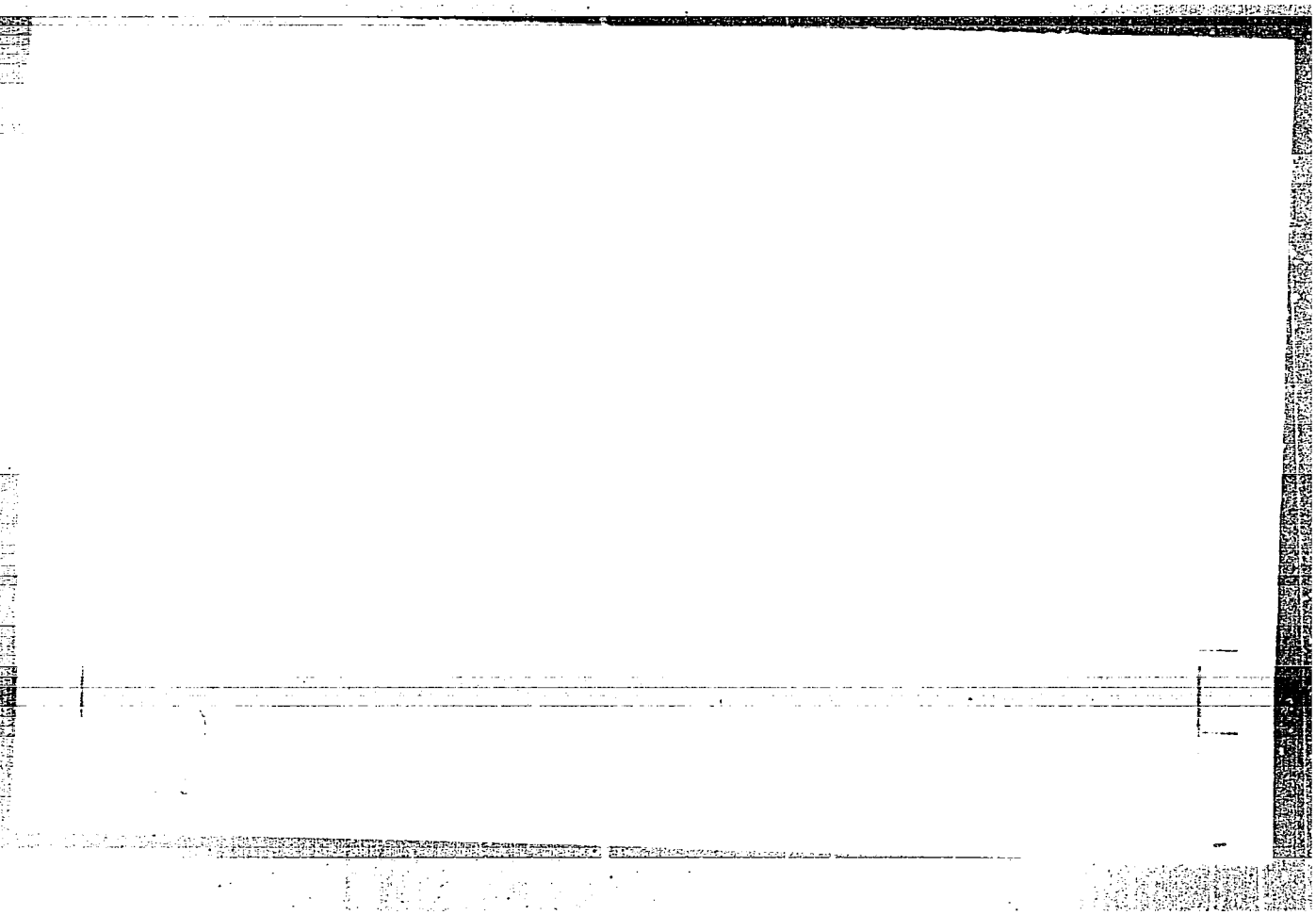

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EPA(s)-2/EWP(k)/EWA(c)/EWT(m)/EWP(b... JD/HM/GS

ACCESSION NR: AT5017709 UR/0000/65/000/000/0222/0236

Nikolayev, G. A.; Vinokurov, V. A.; [illegible]

AN UkrSSR, Institut elektrosvarki. [illegible] ...konstruktsii [illegible] structures). Kiev, Naukova dumka, [illegible]

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[illegible] appropriate procedures. Residual stresses were found to be little affected by the [illegible] contributing components. Two theoretical-experimental methods were developed for calculating the three-axis time-temperature field and residual stresses. In the [illegible]

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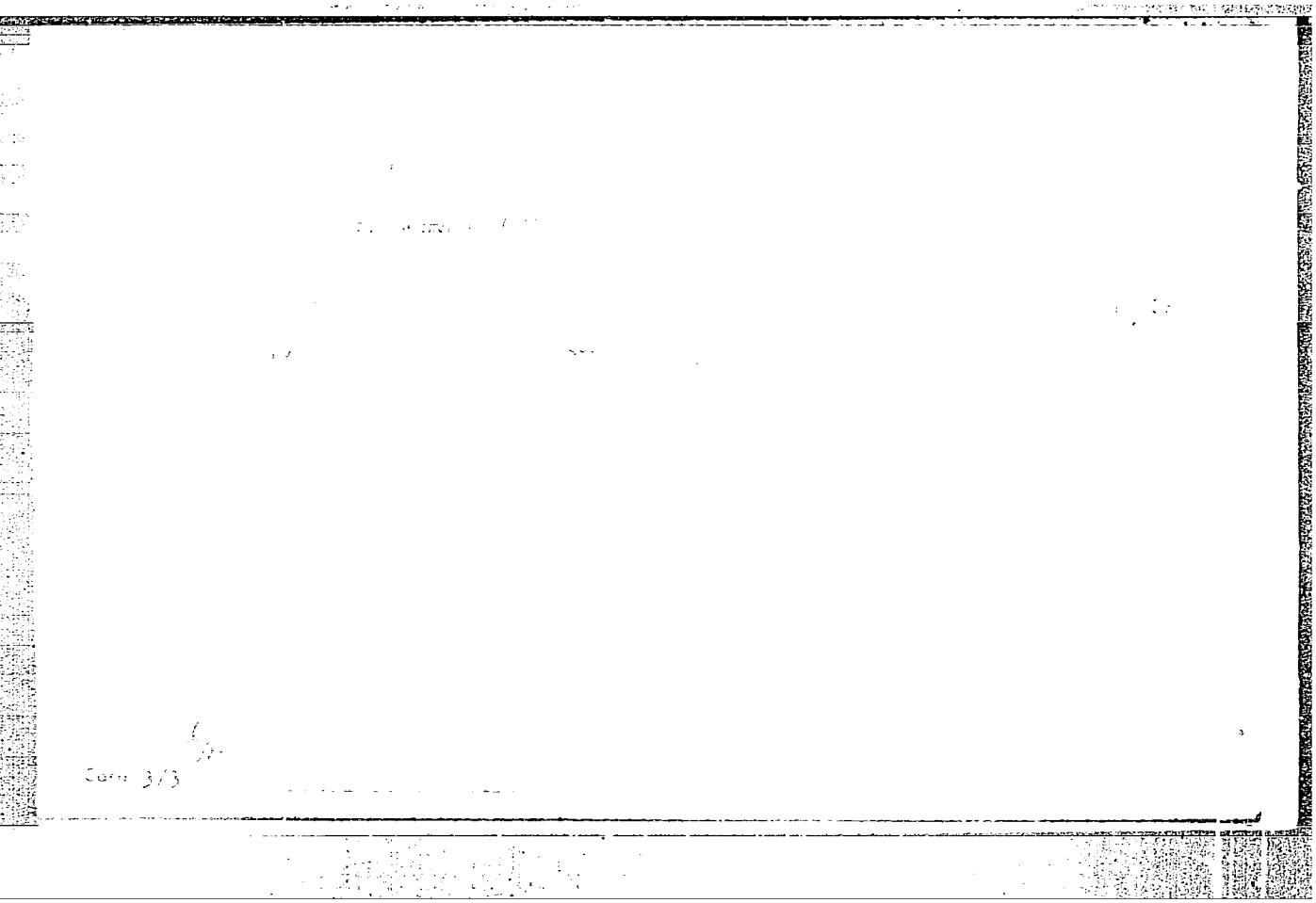

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L 5438-66 EWT(d)/EWT(m)/EWP(w)/EWP(c)/EWA(d)/EWP(v)/T/EWP(k)/EWP(z)/EWP(b)/EWP(l)/
ACC NR: AP5022346 EWA(c)/ETC(m) MJW/ SOURCE CODE: UR/0135/65/000/009/0007/0010
JD/WW/HW/EM

AUTHOR: Kurkin, S. A. (Doctor of technical sciences); Luk'yanov, V. F. (Engineer)

ORG: MVTU im. N. E. Baumana

TITLE: Evaluating the design strength of a welded, thin-walled container from the results of a biaxial tension test

SOURCE: Svarochnoye proizvodstvo, no. 9, 1965, 7-10

TOPIC TAGS: metal, alloy, alloy strength, burst strength, design strength, strength test, burst test/VAD-1T alloy, VKS-1 steel

ABSTRACT: A method for preliminary evaluation of the design strength of a welded, thin-wall container based on the results of a relatively simple bulging test are discussed. In the bulging test developed by MVTU, flat specimens of sheet metal with or without weld are bulged to fracture by a hydrostatic pressure applied in increments (Fig. 1). After each increment the pressure is released and the curvature of the bulge

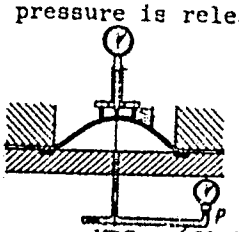

Fig. 1. Burst test

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and the sheet are measured. Graphs are then plotted from which the design strength of a container can be determined. The method makes it possible to evaluate the effect of various factors individually or in combination. It was used to evaluate the performance of VAD-1T alloy, VKS-1 steel, and a low-carbon steel. Orig. art. has: 5 figures and 6 formulas. [AZ]

SUB CODE: AS,MM/ SUBM DATE: none/ ORIG REF: 004/ OTH REF: 005/ ATD PRESS: 4134

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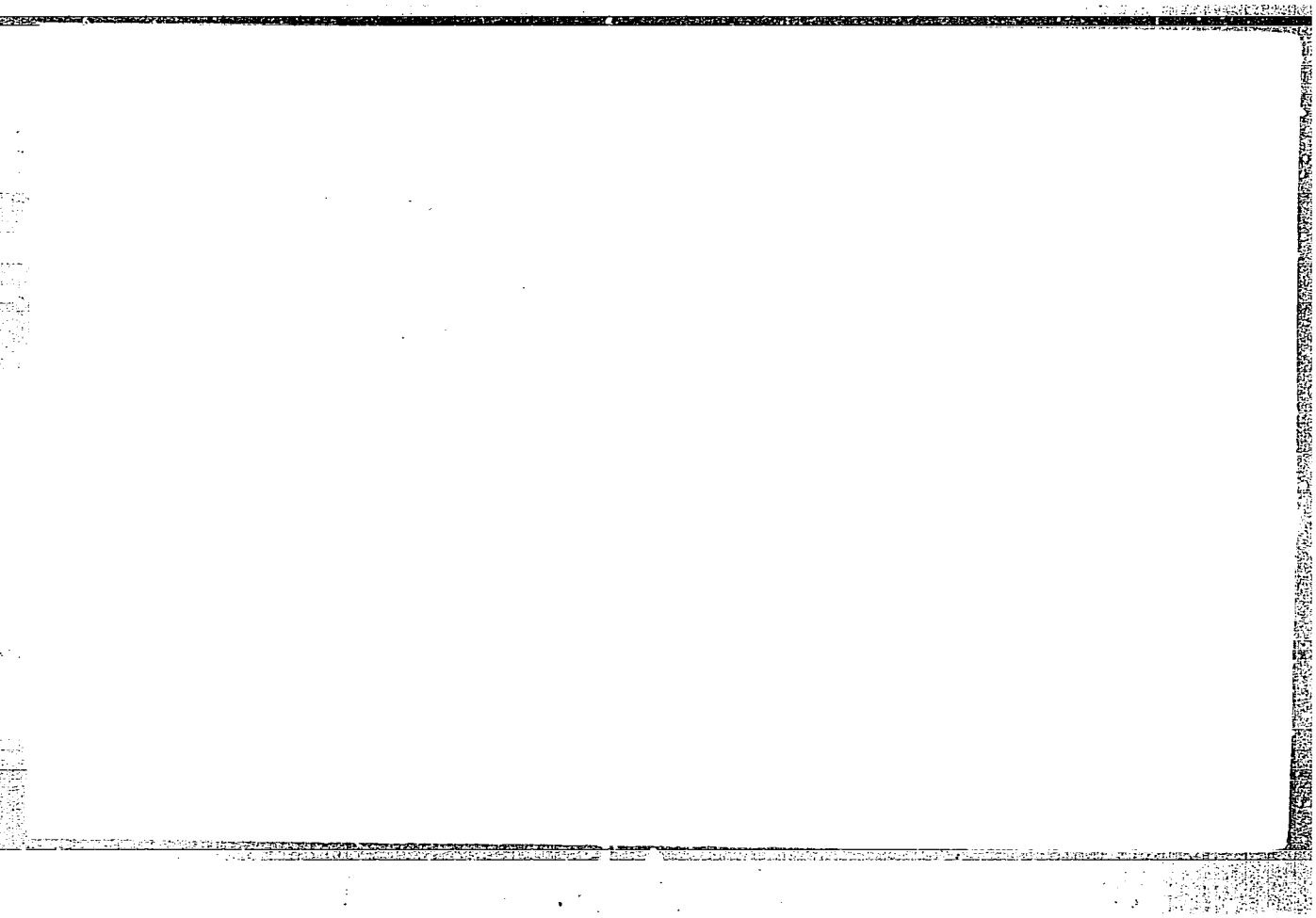

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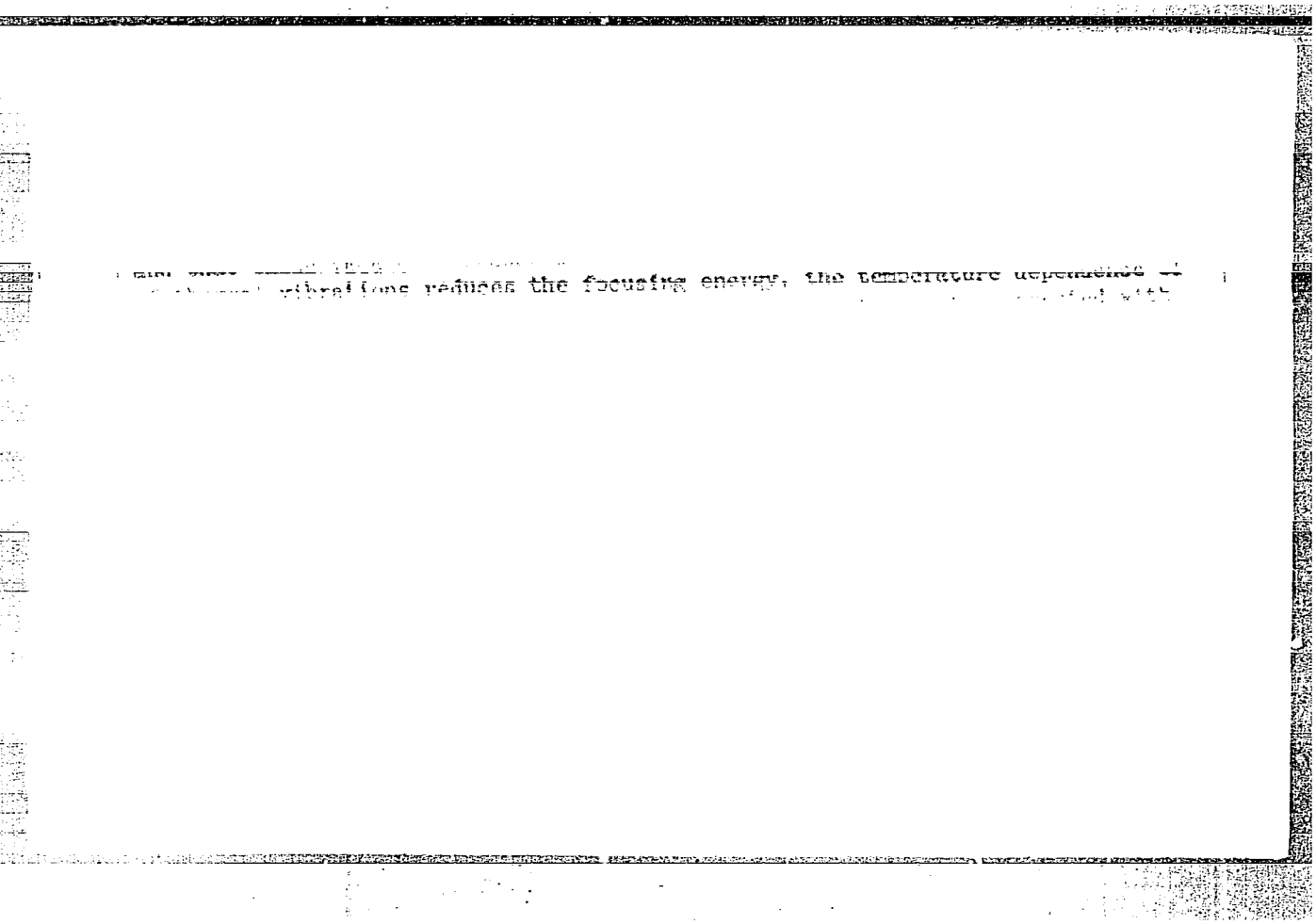

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

ACC NR: AT6030937 SOURCE CODE: UR/0000/66/000/000/0072/0084

AUTHOR: Kurkin, S. A. (Doctor of technical sciences); Parakhin, V. A. (Candidate of technical sciences)

ORG: none

TITLE: Equipment for planishing welded joints

SOURCE: Moscow. Vysshcye tekhnicheskoye uchilishche. Prochnost' svarnykh konstruktsiy (Strength of welded structures). Moscow, Izd-vo Mashinostroyeniye, 1966, 72-84

TOPIC TAGS: weld planishing, ~~weld planishing~~ welding equipment, weld evaluation

ABSTRACT: Weld planishing is done for three main purposes: to eliminate or at least to reduce the deformation caused by welding; to smooth the weld and thus to improve its shape and surface quality; and to improve the mechanical properties of the welded joint. Research conducted at the Moscow Higher Technical School im. Bauman (MVTU) resulted in the development of several methods of weld planishing and several types of planishing equipment which have found a steadily growing field of application in industry, especially in branches involved in the manufacture of welded light-wall containers. Planishing must be done in specialized equipment whose design features are determined by the shape and size of the article, the weld location (longitudinal or circumferential), and the purpose of planishing. There are, however, several basic requirements which are applied to all types of planishers: 1. The drive design

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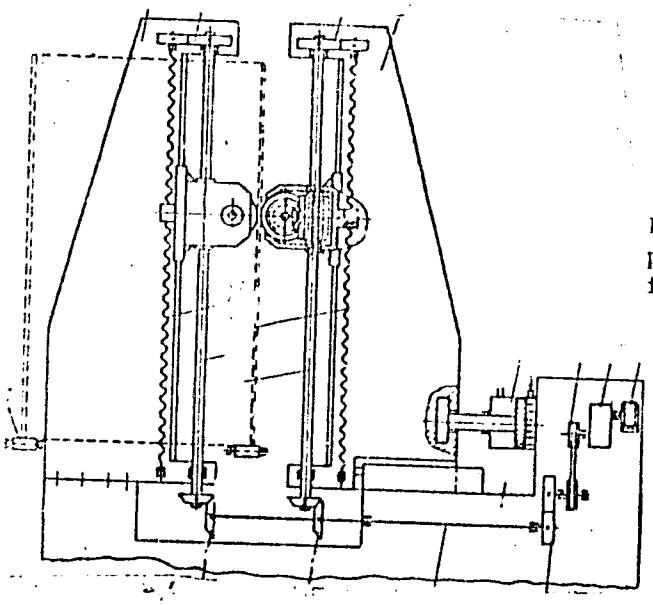

Fig. 1. Schematic layout of a planisher for longitudinal welds in large-diameter shells.

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must ensure a smooth continuous motion of the planished weld without roll sliding. 2. The planisher and, especially, the pressure adjustment must be sufficiently rigid to maintain the necessary pressure on the roll during planishing. 3. Planishers are built with a maximum roll pressure of 4 to 20 tons, depending on the purpose of planishing and type and thickness of shell material. 4. Planishing rolls must have a smooth surface with a hardness of $60R_c$. 5. The linear speed of the planished article should not exceed 1—1.5 m/min. Planishing can be done between two rolls, or between a roll and a plate or a mandrel. Rolls can be driven or idle. Since 1956, MVTU has developed several experimental and production-type planishers beginning with the 5-ton MVTU-MPRI experimental planisher for relatively small diameter shells and ending with a vertical type unit for planishing longitudinal welds in large diameter shells (see Fig. 1). Orig. art. has: 11 figures and 1 table.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

ACC NR: AP6033029 (N) SOURCE CODE: UR/0135/66/000/010/0016/0019

AUTHOR: Kurkin, S. A. (Doctor of technical sciences); Vinokurov, V. A. (Doctor of technical sciences); Sagalevich, V. M (Candidate of technical sciences)

ORG: Moscow Higher Technical School im. N. E. Bauman (MVTU)

TITLE: Certain specific features of welding circumferential joints of aluminum-alloy shells

SOURCE: Svarochnoye proizvodstvo, no. 10, 1966, 16-19

TOPIC TAGS: thin shell structure, seam welding, weld defect, aluminum alloy, welding, aluminum alloy welding, aluminum circumferential shell welding/ AMg6 alloy, ATsM alloy

ABSTRACT: Circumferential welds in thin-wall steel shells have a tendency to shrink (see Fig. 1). This, however, can be corrected either by planishing of finished welds or by a slight flaring of the faying ends prior to welding, if planishing, for some reason, cannot be applied. In the case of aluminum or aluminum alloys, the weld has a tendency to expand. This cannot be corrected by a post-welding treatment. However, the deformations can be controlled by holding the edges down with hoops located at a distance of 20—30 mm from the weld or, even better, with a clamping roller which travels along the joint in front of the welding arc. The best way,

Card 1/2

UDC: 621.791.75 : 546.293 : 669.715

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ACC NR: AP6033029

however, is to weld from the inside with a rigid backing ring on the outside. This method also helps to reduce the stresses in the weld roots and creates more favorable conditions of service in circumferential welds exposed to bending moments. Orig. art. has: 7 figures.

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

Card 2/2

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

GUZMAN, Abram Aronovich; KURKIN, Sergey Ivanovich; LYUDSKOV, B.P., red.; MAMONTOVA, N.N., tekhn.red.

[Assembling, operating, and repairing vending machines] Montazh, tekhnicheskoe obsluzhivanie i tekushchii remont torgovykh avtomatov. Moskva, Gos.izd-vo torg.lit-ry, 1960. 131 p. (MIRA 13:12)

(Vending machines)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.

Organizing packaging shops. Sov.torg. no.6:27-31 Je '58.
(MIRA 13:2)
(Packaging)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V., inzh.

Introduce more extensively the packaging of groats at the mill.
Muk.-elev.prom. 25 no.12:17-18 D '59. (MIRA 13:4)

1. Ministerstvo torgovli RSFSR.
(Packaging machinery)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.; BORMINSKAYA, L.

Mechanization of the packaging of bulk products. Sov. torg. 33 no.12:52-55 D '59. (MIRA 13:2)
(Packaging)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.

RRM-2 automatic scales for the packaging of flour. Sov. torg. 34 no.10:52-54 O '60. (MIRA 13:10)
(Packaging machinery) (Scales (Weighing instruments))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.

Pulse counter. Sov. torg. 36 no.5:47-48 My '63. (MIRA 16:5)
(Counting devices) (Vending machines)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.A.

Starting-up of a large synchronous motor with a power source of commensurable power. Prom.energ. 16 no.10:13-17 O '61. (MIRA 14:10)

(Electric motors, Synchronous)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKO, V.I., kand.tekhn.nauk; KEL'MAN, L.F., mladshiy nauchnyy sotrudnik

Aromatic properties of phenols, products of thermal decomposition of wood. Trudy VNIIMP no.14:36-48 '62. (MIRA 16:8)
(Meat, Smoked) (Phenols)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKO, V.I., red.; VOROB'YEVA, L.I., red.; SOKOLOVA, I.A., tekhn.red.

[Smoking of meat products; popular presentation of the scientific principles of smoking] Kopchenie izdelii iz miasa; populiarnoe izlozhenie nauchnykh osnov kopcheniia. Moskva, Pishchepromizdat, 1963. 86 p. (MIRA 17:3)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKO, V.I.; KHMEL'NITSKIY, Ye.A.

Investigating the colorimetric determining of phenols in smoked sausage with the use of 4-aminoantipyrin. Izv. vys. ucheb. zav.; pishch. tekh. no.4:154-158 '63.
(MIRA 16:11)

1. L'vovskiy torgovo-ekonomicheskiy institut TSentral'nogo soyuza potrebitel'skikh obshchestv SSSR, kafedra tovarovedeniya prodovol'stvennykh tovarov.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.I.

Steady movement of a flexible thread. Izv. vys. ucheb. zav.; tekh. tekst. prom. no.6:40-45 '64. (MIRA 18:3)

1. Moskovskiy ordena Lenina energeticheskiy institut.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KIRDE[illegible], V.I.; [illegible], I.V.

Calculation of friction resistance during a longitudinal movement of a vessel in the air. Izv.vys.ucheb.zav.; [illegible] no. [illegible] p. [illegible] '65. (MIRA 18:5)

1. Moskovskiy [illegible] institut.

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.M., inzh. (Minsk)

Use of linear programming in solving transportation problems.
Zhel.dor.transp. 43 no.5:65-67 My '61. (MIRA 14:4)
(Linear programming)
(Railroads—Electronic equipment)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

S/046/61/007/004/005/014
B139/B102

AUTHOR. Kurkin, V. P.

TITLE: Sound generation in a gas jet siren

PERIODICAL: Akusticheskiy zhurnal, v. 7, no. 4, 1961, 442-445

TEXT: Static sirens with Hartmann gas ejectors do not require rotating parts and offer good prospects. In these sirens, sound is generated by blasting gas at supersonic velocity through a nozzle into the resonator which is thus periodically filled with gas. On flowing in, the gas velocity in the nozzle, v_{no}, is higher than its velocity, v_{re}, in the resonator. Then, for a moment, dynamic equilibrium prevails in the state $v_{no} = v_{re}$ before this process is repeated. The sound-generating, oscillating compression shock, whose properties are studied in this paper, occurs at the boundary between the two velocities. A set of supersonic Hartmann ejectors was arranged in a manner allowing a variation of the distance between nozzles and resonators and the distance between the nozzle - resonator axis; an adjustable reflector facilitated the variation.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

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Sound generation in a gas jet siren

The empirical dependence of the emitted acoustic frequency f (kc/sec) on the nozzle diameter d (cm) is represented by the formula

$$f \approx \frac{\beta c}{\pi d} \cdot 10^{-3}$$

β is a constant factor which equals 0.5 if the velocity of sound in air is $c = 331 \cdot 10^2$ cm/sec. The author measured the sound intensity for a siren with five 5-mm nozzles as a function of the distance d_p between the nozzle -resonator axis and the reflector. He obtained maximum intensity at d_p = 1.3 and 2.8 cm. These maxima correspond to the d_p calculated from the formula

$$a_p = \frac{1}{2} \frac{\chi_p c}{\pi f} \cdot 10^{-3} \text{ cm}$$

χ_p - roots of the Bessel function of zeroth order, c - velocity of sound. The gas flow rate is determined by the empirical approximate formula

$$q = \frac{3.2 \cdot 10^4 p}{f^2 \sqrt{T}}$$

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

S/046/61/007/004/005/014
B139/B102

Sound generation in a gas jet siren

K (p - excess pressure in the siren, T - absolute temperature of air, K - number of nozzles). Therefrom it follows that operation of the siren is most economic at high frequencies. The test siren with five nozzles and adjustable reflector had an air flow rate of about 292 m^3/h, the energy amount necessary for compression to 4.44 atm was calculated to be 14 kw from the formula for polytropic compression. Thus, an acoustic efficiency of about 11% was found for this siren. The author thanks B. D. Tartakovskiy for assistance. There are 6 figures and 3 references: 1 Soviet and 2 non-Soviet.

ASSOCIATION: Gosudarstvennyy n.-i. institut po promyshlennoy i sanitarnoy ochistke gazov, Moskva (State Scientific Research Institute of Industrial and Sanitary Gas Purification, Moscow)

SUBMITTED: May 25, 1960

Card 3/3

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.P.

Trapping of a highly dispersed carbon black by means of acoustic coagulation. Kauch. i rez. 20 no.6:29-32 Je '61. (MIRA 14:6)

1. Gosudarstvennyy nauchno-issledovatel'skiy institut po promyshlennoy i sanitarnoy ochistke gazov.
(Carbon black)
(Ultrasonic waves--Industrial applications)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.P.

Thermoprecipitator with a movable heating element. Zav.lab. 28 no.8:1001-1002 '62. (MIRA 15:11)

1. Nauchno-issledovatel'skiy institut po promyshlennoy i sanitarnoy ochistke gazov.
(Precipitation (Chemistry))

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

ACCESSION NR: AP4039281 S/0046/64/010/002/0191/0194

AUTHOR: Kurkin, V. P.

TITLE: On the mechanism of noise generation in noise-emitting gas jets

SOURCE: Akusticheskiy zhurnal, v. 10, no. 2, 1964, 191-194

TOPIC TAGS: shock wave, gas jet, jet noise, entropy diagram, dissipation energy, oblique shock, Mach number, enthalpy

ABSTRACT: The shock wave oscillation in a Hartman type noise emitting gas stream has been studied on an enthalpy-entropy diagram. From the energy balance $E_T = E_k + E_o + E_{dis}$ (E_T - total energy, E_k - energy due to jet noise, E_o - energy loss from oscillating shock wave, E_{dis} - dissipative energy in shock) and from conditions through the shock, an expression is derived for the efficiency $\eta = E_k/E_T$ as a function of Mach number M_1 and shock slope β, or

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ACCESSION NR: AP4039281

$$\eta = \frac{1-\left[\left(1+\frac{k-1}{2}\right)\left(\frac{M_1^2+\frac{2}{k-1}}{\frac{2k}{k-1}M_1^2\sin^2\beta-1}+\frac{M_1^2\cos^2\beta}{\frac{k-1}{2}M_1^2\sin^2\beta+1}\right)\right]^{1/k}}{1-\frac{1}{\left(1+\frac{k-1}{2}M_1^2\right)^{1/k}}}$$

It is observed that η increases as β decreases, or M_1 decreases for a given β. Experimental data also show that the most effective noise generation occurs from oblique shocks. Orig. art. has: 7 equations and 2 figures.

ASSOCIATION: Gosudarstvenny* n.-i. institut po promy*shlennoy i sanitarnoy ochistke gazov, Moscow (State Scientific Research Institute for Commercial and Sanitary Gas Purification)

SUBMITTED: 18Nov62 DATE ACQ: 12Jun64 ENCL: 00

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, V.P.

Certain particularities of the logarithmically normal law as applied to the determination of the coefficient of spreading of aerosol particles. Zhur.prikl.khim. 38 no.9:2119-2121 S '65. (MIRA 18:11)

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

541.182.021

AUTHOR: Kurkin, V. P.

31
B

TITLE: Statistical method of determining the dynamic form factor of highly dispersed

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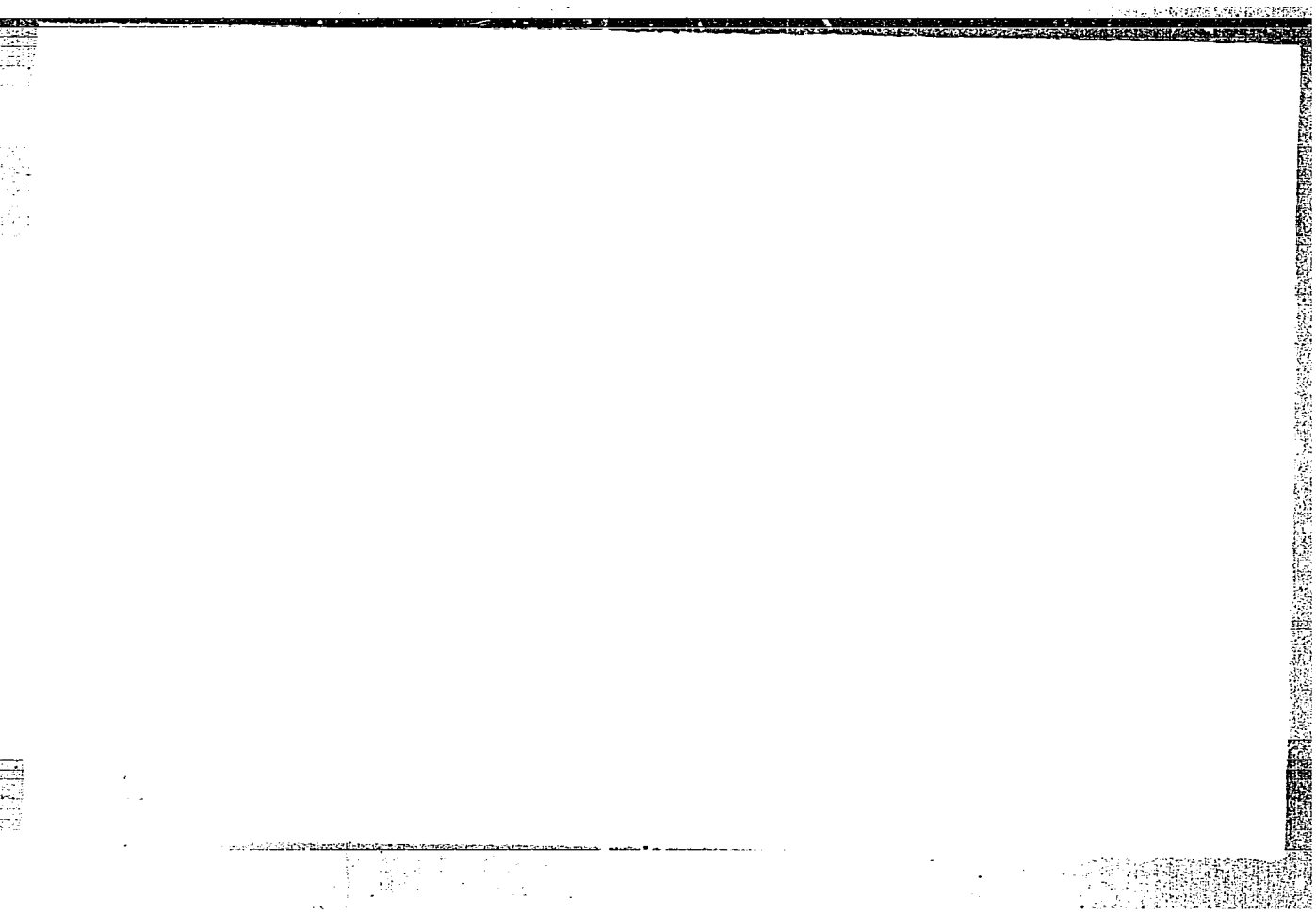
"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7



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L 28974-66 EWT(m)/EWP(j)/T IJP(c) RM/DS/WW

ACC NR: AP6019134 SOURCE CODE: UR/0080/65/038/009/2119/2121

AUTHOR: Kurkin, V. P.

19
B

ORG: none

TITLE: Certain peculiarities of the normal logarithmic law applicable to the determination of the coefficient of spreading of aerosol particles

SOURCE: Zhurnal prikladnoy khimii, v. 38, no. 9, 1965, 2119-2121

TOPIC TAGS: aerosol chemistry, aerosol

ABSTRACT: It is shown that the coefficient of spreading of aerosol particles differs from the coefficient of spreading of macrodrops obtained from the same liquid as the aerosol. Orig. art. has: 1 figure and 3 formulas. [JPRS]

SUB CODE: 07 / SUBM DATE: 020ct63 / ORIG REF: 004

Card 1/1 BLG

UDC: 541.182.2/3

APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

USSR/Cultivated Plants - Fruits. Berries. M.

Abs Jour : Ref Zhur - Biol., No 10, 1958, 44290

Author : Kurkin, Yu.A.

Inst : Stalingrad Agricultural Institute.

Title : Raising the Quality and the Yield of the Grafted Fruit Tree Seedlings from Nurseries.

Orig Pub : Sb. nauchn. rabot. stud. Stalingr. s.-kh. in-ta, 1956, vyp. 2, 69-72.

Abstract : No abstract.

Card 1/1

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

8(3) SOV/105-59-8-14/28

AUTHORS: Kurkin, Yu. L., Engineer, Sokolov, A. A., Candidate of Technical Sciences (Moscow)

TITLE: Calculation of the Circuit-diagram of a Compound Transistor

PERIODICAL: Elektrichestvo, 1959, Nr 8, pp 62-64 (USSR)

ABSTRACT: In this article the calculation of the hybrid parameters of a compound common-base transistor is presented. The circuit-diagram of such a transistor with two triodes is shown by figure 1. The formulas (19) to (28) required for calculation are derived. The hybrid parameters of the compound common-emitter transistor are determined from formulas (29) to (32). The calculation of the temperature stabilization is then presented for the circuit-diagram, shown by figure 2, of a compound transistor with two triodes and a common emitter. Formula (38) specifying the temperature stabilization coefficient S is derived. It shows that a good temperature stabilization of a compound transistor and a high input resistance of this circuit are contradictory requirements. Hence the assertion of the compound transistor having a high temperature stability made in reference 2 is incorrect. If such a stability is really to be at-

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tained, a compensation by means of a non-linear temperature-sensitive element must be provided. It is shown that the instability of a compound transistor is smaller by 10 to 25 times than that of the triodes contained in it. The variation of the instability of a compound transistor is very small and amounts to approximately tenths of one per cent. This secures constant impedance conversion in a circuit with negative impedance converters. There are 3 figures and 2 references.

SUBMITTED: May 12, 1959

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

9(6) S/119/60/000/03/006/017
B014/B007

AUTHORS: Turkin, M. L., Engineer, Turkin, Yu. L., Engineer, Matsonashvili, R. D., Engineer, Shumskiy, A. N., Engineer, Shumskaya, S. T., Engineer

TITLE: A Universal Apparatus for Infralow Frequencies (UPINCh)

PERIODICAL: Priborostroyeniye, 1960, Nr 3, pp 14-16 (USSR)

ABSTRACT: In the present paper the methods of carrying out a general investigation of automatic control systems within the region of low frequencies are dealt with, and the apparatus mentioned in the title is briefly described. It is found that during the feeding-in of a sinusoidal voltage into the automatic control system under investigation, a non-sinusoidal voltage exists at the output of the latter, and the authors write down equation (1) for the effective value of the output voltage. The Fourier-expansion of this equation is dealt with, and the Fourier-coefficients and the solutions of equations (1) to (4) are calculated by means of the UPINCh. This idea was suggested by F. Rule of Eastern Germany, who also gave the principle of the aforementioned apparatus. In figure 3 the block wiring diagram for measuring the effective value of the output voltage, the amplitude of the fundamental frequency and the coefficient of nonlinear distortion is shown. Measurement of the phase shift

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A Universal Generator for Infralow Frequencies (Russian)

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B014/B007

[illegible] the harmonic oscillations occurs according to equation [illegible] of the corresponding block diagram is shown in figure 4. [illegible], the generator for low-frequency voltages (Fig 6) [illegible]. This new type of generator is a magnetoelectri- [illegible] with electric reverse feedback. The square [illegible] is generated by a relay connected to the generator. [illegible] schematical scheme of the electric multiplication apparatus [illegible] in figure 7. This apparatus served the purpose of [illegible] the nonlinearities. The apparatus described here [illegible] possible to measure effective values of voltages of [illegible] of the fundamental amplitude of up to 50 v within [illegible] frequency range of from 0.01-0.5 cps. Measurements of [illegible] coefficient of nonlinear distortion are carried out at [illegible] set of from 0.01 to 0.05 cps. Phase shift is effected within [illegible] frequency range of from 0.01 - 0.5 cps. The authors [illegible] A. Partinov and Yu. I. Yanova for their valuable [illegible] help in carrying out this investigation. There are [illegible] and 2 Soviet references.

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

Kurkin, Yu.L.

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S/120/60/000/03/020/055
E041/E521

AUTHORS: Kurkin, Yu.L., Kurkina, N.S., Matsonashvili, R.D., Shumskiy, A.N. and Shumskaya, S.T.

TITLE: Study of an Electrodynamic Multiplier

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No 3, pp 82-84

ABSTRACT: The instrument is shown, with the cover removed, in Fig 2. A simplified circuit diagram is in Fig 1. EM_1 and EM_2 are electromagnets, PC_1 and PC_2 are moving coils, FD_{1-4} are photo-electric pick-offs, y_1 and y_2 are d.c. amplifiers. Each moving coil compares the torques proportional to the product of the current in the coil and the air-gap flux density. A feedback circuit using the pick-offs and amplifiers obliges Eq (1) to be observed. Since fixed resistances are connected in series with the coils, the instrument may be used as a voltage multiplier as in Eq (4), or if the inputs U_z and U_o in Fig 1 are connected together, as a square root extractor. The size of the unit is

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E041/E521

Study of an Electrodynamic Multiplier

220 x 135 x 180 mm^3. Although the use of feedback avoids errors due to amplifier drift or temperature instability of the pick-offs, the instrument is still vulnerable to parasitic mechanical torques. The maximum working torque is 4 gm.cm. The error contributions are those of friction (10^{-3} gm.cm), the flexible connections (10^{-6} gm.cm), misalignment and out-of-balance. The misalignment effects are due to the inclusion of small ferromagnetic particles in undesirable places. The capacitances C_1 and C_4 shown in Fig 1 are necessary to prevent the system breaking into self-oscillations. The maximum input voltage is 100 V, the accuracy in multiplication is 1.10^{-3} and in division 2.10^{-3}. The frequency response is flat to 0.5 c/s. G. A. Martinov is thanked for his assistance. There are 2 figures and 2 Soviet references.

SUBMITTED: April 4, 1959

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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

86759

S/120/60/000/006/035/045
E073/E335

9.6000 (3702, 1099, 1160)

AUTHORS: Kurkin, Yu.L., Kurkina, N.S. and Matsonashvili, R.D.

TITLE: Instrument for Measuring the Potential of Magnetic Surge Fields

PERIODICAL: Pribory i tekhnika eksperimenta, 1960, No. 6, pp. 122 - 123

TEXT: An instrument is described which is intended for measuring magnetic surge fields between 1 and 1 000 Oe with an accuracy not less than ± 2-3%. The instrument is based on utilising the Hall effect, i.e. the Hall e.m.f., which is highly sensitive to the applied voltage (Ref. 1). Of the hitherto investigated materials n - Ge has the highest sensitivity. In no-load operation the basic source of error of the instrument is the temperature dependence of the Hall e.m.f., which is due to of the dependences of the concentration and the mobility of the current carriers on the temperature $n(T^{o})$ and $\mu(T^{o})$. Their relative importance depends on the supply circuit of the pick-up. To ensure normal operation of the pick-up, "contact phenomena" have to be excluded. For this purpose it is

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Instrument for Measuring the Potential of Magnetic Surge Fields

necessary that the contacts should be non-emitting, non-rectifying and they should have a low resistance. Good contacts can be obtained by grinding the surface, followed by pickling in a solution consisting of 10 cm^3 hydrogen peroxide and a few drops of liquid ammonia. The contacts should be soldered by tin alloyed with 10% antimony. A diagram of the basic circuit of the instrument is included. The Hall probe is fed from stabilised equipment which ensures thermal stabilisation of the Hall e.m.f. by changing the intensity of the current which flows through the probe. As a temperature pick-up a normally barred diode is used, which is connected in parallel to resistances. The diode is in thermal contact with the Hall pick-up. By varying the impedance of the divider (by changing the resistance R_1) the change in the current intensity with temperature in the range of 20 - 40 °C can be obtained which is necessary

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E073/E335

Instrument for Measuring the Potential of Magnetic Surge Fields

for achieving compensation. The instrument has a pointer and also an oscillographic output. The duration of the measured pulses is 20 μs to 20 ms (oscillographic output) and 100 μs to 20 ms (pointer indication). Measurements have shown that for a pick-up of 1.2 x 1.5 x 0.02 cm, made of 16 Ω Ge, the amplitude of the ripples due to pulsations of the supply voltage, the microphone effect of the tubes and other influences will not exceed 1 to 1.5% on the most sensitive scale of the instrument. Acknowledgments are expressed to A.P. Pyatnitskiy for checking the manuscript and for valuable advice and to V.V. Grigorashvili for designing the instrument. There are 2 figures and 1 Soviet reference.

SUBMITTED: October 15, 1959

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APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7"

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KURKIN, Yu.L.; SOKOLOV, A.A.

Accuracy of transistor negative-impedance converters. Elektrosviaz' 14 no.9:26-35 S '60. (MIRA 13:9)
(Electric current converters) (Transistors)

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B120/B201

16.9500 (1031, 1121, 1132)

AUTHORS: Kurkin, Yu. L., Kurkina, N. S., Matsonashvili, R. D., Shumskii, A. N., and Shumskaya, S. T.

TITLE: Study of a generator for very low frequencies

PERIODICAL: Izmeritel'naya tekhnika, no. 1, 1961, 32-35

TEXT: To study automatic control systems, generators are necessary which produce oscillations in the range of 0.01-20 cycles. The authors describe an electromechanical generator for very low oscillation frequencies, the principle of which had been suggested by F. Ruhl (Eastern Germany). The system shown in Fig. 1 consists of a magnetoelectric system with magnetic feedback. The movable system of this device is not in equilibrium with its axis of rotation produces a certain mechanical torque. This torque is kept in equilibrium by a counteracting torque which is produced in the frame, and which is controlled by the pickup. The equilibrium of this system is controlled by a servosystem, and the input voltage of the servosystem is the desired oscillation of very low frequency. The authors studied the possible errors very thoroughly. It was found that nonlinear disturbances do not

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Study of a ...

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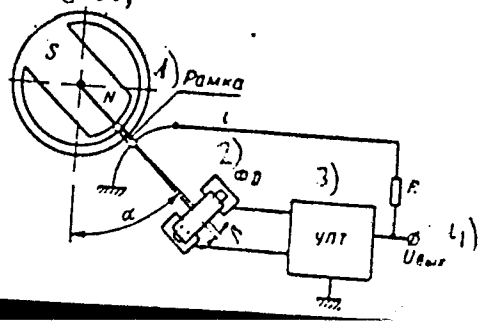
exceed 0.5%, and that the error caused by centrifugal forces does not exceed 0.1%. Technical data of the generator: two electrical sine-wave voltages offset in phase by 90°, where the 90° phase shift is observed to within ± 0.2%; frequency range: 0.01 to 1 cycle, ± 0.2%. Maximum output voltage is equal to 100 units as referred to the amplifier input voltage as the unit. Amplitude fluctuation of the output voltage is smaller than ± 0.3% Nonlinear distortions are smaller than 0.5%. Maximum noise voltage at the output is 0.3 units as referred to the amplifier input voltages as the unit. G. A. Martynov and Yu. I. Yanova took part in the present investigation.

Legend to Fig. 1: S - N is the movable magnet;
1) frame; 2) pickup; 3) d-c amplifier;
4) output voltage.



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"APPROVED FOR RELEASE: 06/19/2000 CIA-RDP86-00513R000927720007-7

KURKIN, Yuriy Leonidovich, inzh.; SOKOLOV, Aleksandr Aleksandrovich, kand.tekhn.nauk, dotsent

Transistor amplifiers for impedance sign converters. Izv. vys. ucheb. zav.; elektromekh. 4 no.3:138-145 '61. (MIRA 14:7)

1. Kafedra poluprovodnikovykh priborov Moskovskogo energeticheskogo instituta.

(Transistor amplifiers)
(Impedance(Electricity))
(Electric networks)

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D207/D306

9,2560

AUTHORS: Kurkin Yu. L., Engineer, and Sokolov, A. A., Candidate of Technical Sciences, Docent

TITLE: Bridge circuits for impedance sign inverters in semiconductor devices

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Elektromekhanika, no. 6, 1961, 19-26

TEXT: The development of impedance sign inverters (PZ) is one of the leading branches of the modern theory of active circuits. The properties of elementary active circuits are considered, PZ being a particular case of these. Four new types of bridge PZ are given, the elements of their A-matrices are computed, their sensitivity to changes of parameters of transistors is estimated. The analysis shows that the accuracy of these new circuits is higher than the accuracy of earlier circuits. Possibilities of further improvement consist in replacing one of the semiconductor triodes by a composite triode having $\alpha \longrightarrow 1$. In this way non-linear distortions of the system are reduced. A composite triode with feedback

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Bridge circuits for...

to base current (Fig. 14b) is preferable to Darlington's triode. Considerable simplification is attained by using triodes with complementary symmetry p-n-p and n-p-n. It is shown that bridge PZ can be easily converted into inverters of negative resistance; some useful applications are mentioned. One of the types of inverters proposed is shown in Fig. 9. There are 14 figures, 2 tables and 5 references: 3 Soviet-bloc and 2 non-Soviet-bloc. The references to the English-language publications read as follows: P.V. Indiresan, A negative resistance for D.C. computers, Journal Brit. I.R.E. vol. 10, no. 7, July 1959; S. Darlington, USA, Patent 2,663,800.

ASSOCIATION: Kafedra poluprovodnikovykh priborov Moskovskogo energeticheskogo instituta (Department of Semi-conductor Equipment, Moscow Institute of Energetics) (A. A. Sokolov)

SUBMITTED: December 17, 1960

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29323
S/109/61/006/010/021/027
D222/D302

AUTHORS: Kurkin, Yu.L., and Kurkina, N.S.

TITLE: Precision transistor amplifiers of high input (or output) impedance for analogue computers

PERIODICAL: Radiotekhnika i elektronika, v. 6, no. 10, 1961, 1749 - 1756

TEXT: The authors recommend new circuits for current and voltage amplifiers, and for voltage-current converters, in which the usual limitations on the input and/or output impedances are removed. They show that the high output impedance can be obtained only by applying positive feedback. In existing feedback current-amplifiers the output impedance is limited by the collector resistance of the output transistor for any appreciable degree of feedback. High output impedance $r_{out} \gg r_c$ can be achieved by using a small amount of positive feedback, as shown in Fig. 2, in addition to the overall negative feedback. This multi-loop feedback circuit improves the sta-

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