MOGUTIN, V.

Cost of export credi[illegible] the equipment trade. Vnesh. torg. 43 no.9:37-40 '63. (MIRA 16:10)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

MOGUTIN, B.M., kapitan med. sluzhby

Sectional Maddox scale. Voen.-med.zhur. no.11:68-69 N '57.
(OPHTHALMOLOGY, apparatus and instruments, (MIRA 11:4)
sectional Maddox scale (Rus)

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PRUSVIE[illegible], [illegible]. I. ; [illegible]OVA, [illegible]. [illegible].

Apparatus for the determination of the relative damping of [illegible] vibrations. (The energy losses of the apparatus are very low, the vibrations are recorded optically; the described apparatus is useful for investigation of steel behavior in the case of [illegible]).

pp. 12[illegible] - 13[illegible].

A paper contained in the symposium "Research Work on [illegible] of Steel", edited by I. [illegible]. Kudryavtsev, [illegible], 19[illegible].

BARBARASH, Zoya Borisovna; MOGUNOVA, M.A., red.; TIMOFEYEVA, N.V., tekhn.red.

[Special rights of women workers and employees] L'goty po trudu dlia zhenshchin - rabochikh i sluzhashchikh. Moskva, Gos.izd-vo iurid.lit-ry, 1961. 44 p. (MIRA 14:6)
(Women--Rights of women) (Women--Employment)

MOGUNOV, I.F.

Insulation of pipelines with moulded pieces. Rats.i isobr.predl.v stroi. no.73:19-20 '54. (MLRA 7:6)
(Steampipe coverings)

MOGUNOV, A.

Agriculture

Let's raise the level of agriculture. Kolkh. proizv. No. 3, 1953.

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

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

MOGULISHVILI, L. M., GVAKHARIA, V. V., ABASHIDZE, K. A., BOGDAVADZE, N. V., CHANTLADZE, T. L., and NASKIDASHVILI, I. D.

"Neutron Activation Analysis of Manganese Ore"

paper presented at the All-Union Seminar on the Application of Radioactive Isotopes in Measurements and Instrument Building, Frunze (Kirgiz SSR), June 1961)

So: Atomnaya Energiya, Vol 11, No 5, Nov 61, pp 468-470

PLATONOV, A.A.; MOGUKALO, G.A., smennyy tekhnik; NIKOLAYEV, M.N.

Readers letters. Bezop. truda v prom. 8 no.9:54 S '64 (MIRA 18:1)

1. Starshiy inzh. po tekhnike bezopasnosti Glavnogo upravleniya geologii i okhrany nedr pri Sovete Ministrov UzSSR (for Platonov). 2. Shakhta Nr.7 tresta Petrovskugol' Donetskogo soveta narodnogo khozyaystva (for Mogukalo). 3. Nachal'nik otdela kotlonadzora khozyaystva (for mogukalo). 3. Nachal'nik otdela kotlonadzora Upravleniya Sredne-Volzhskogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov RSFSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru (for Nikolayev).

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

MOGUCHIY, M.A., dots. (Krasnodar)

Zinovii Petrovich Solov'ev, distinguished figure in Soviet medicine.
Fel'd. i akush. 25 no.11:42-45 N '60. (MIRA 13:11)
(SOLOV'EV, ZINOVII PETROVICH, 1876-1928)

MOGUCHIY, M.A., general-mayor meditsinskoy slushby, dotsent; KNOROZOV, L.V., polkovnik meditsinskoy slushby.

Partial special treatment. Voen.-med.zhur. no.12:3-6 '59.
(MIRA 14:1)

(MILITARY HYGIENE)

MOGUCHIY, M.A.

Surgery for false nonparasitic cyst of the pancreas. Vest.khir. 75 no.3:126 Ap '55. (MIRA 8:7)

1. Iz khirurgicheskogo otdeleniya bol'nitsy Frunzenskogo rayona g. Leningrada.
(PANCREAS--SURGERY)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

1. MOGUCHIY, Docent M. A.

2. USSR (600)

4. Pirogov, Nikolai Ivanovich, 1810-1881.

7. "Great Russian surgeon and anatomist Nikolai Ivanovich Pirogov." V. M. Kornyeyev. Reviewed by Docent M. A. Moguchiy. Fel'd.i akush. No. 4, 1953.

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

ACC NR: AT7004414

formed on a 200-ton hydraulic press with both the specimens and press tools being heated to 400°C. Extrusion was accomplished through dies with inlet cone angles of 30, 50, 90 and 110°, as well as through square-faced dies. Findings: the use of dies with tapered inlets favorably affects the process of flowage, as evidenced by the decrease in the distortion of the coordinate grids previously incised on the specimens. Increasing the envelope thickness somewhat reduces the extent of deformation; subsequent examination of the coordinate grids points to a laminar rather than turbulent nature of flowage. Thus the use of envelopes of a more plastic and softer metal than the base material of the specimen enhances the uniformity of flowage of the base material and of the distribution of deformations; this effect increases with thickness of envelope. The presence of a tapered die inlet (provided that the cone angle is not too large — up to about 50°) and a closure plate also contributes to the uniformity of flowage and deformations, but to a lesser degree. Orig. art. has: 6 figures.

SUB CODE: 13, 11/ SUBM DATE: 27Sep66/ ORIG REF: 006

Card 2/2

ACC NR: AT7004414 (A) SOURCE CODE: UR/0000/66/000/000/0032/0038

AUTHOR: Moguchiy, L. N.

ORG: none

TITLE: Effect of envelope thickness and die cone angle on the flowage of metal during pressing

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoye sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow, Izd-vo Nauka, 1966, 32-38

TOPIC TAGS: duraluminum, metal extrusion, die, metal press/ AD1 ~~technically pure~~ aluminum

ABSTRACT: The combined effect of the inlet cone angle of the die and thickness of the envelope on the process of flowage and hence also on the distribution of deformations in the product is of definite interest. ["Envelope" refers to a layer of pure aluminum interposed between the billet and container in order to reduce friction.] In this connection, the author investigated the processes of the extrusion of cylindrical rods (20 mm diameter) from billets of the same shape (46 mm diameter). The billets were of duraluminum and the envelope, of AD1 technically pure aluminum. The envelopes were 3, 8, and 13 mm thick and the closure plate was 10 mm thick. The experiments were per-

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APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

ACC NR: AT7004413

specimens was achieved only with the use of envelopes. The extruded envelopes were found to extend uniformly along the length and circumference of the extruded cores. The diameter of the cores extruded in aluminum and copper envelopes exhibited a periodically repeating change along the core length. The use of an iron envelope increased the specific pressure of extrusion and created a more uniform flow of the material with the formation of the core of a uniform diameter. The use of dies with an entry cone had no effect on the nature of flow; the extruded material had a dense structure without cracks. Extruded marble structure had roughly equiaxial grains oriented along the direction of the main deformation. The initial marble had an HB hardness of 30 kg/mm^2, while marble extruded in iron and aluminum envelopes had a hardness of 35 and 28 kg/mm^2, respectively. The mechanical properties depended on the pressure exerted by the envelope during deformation; the higher the stress of the hydrostatic compression, the higher the mechanical properties of the compressed material. Partial stress relieving was observed in hot-extruded marble. Orig. art. has: 2 figures. [MS]

SUB CODE: 11,13/ SUBM DATE: 27Sep66/ ORIG REF: 002/ OTH REF: 004
ATD PRESS: 5117

Card 2/2

ACC NR: AT7004413 (A) SOURCE CODE: UR/0000/66/000/000/0030/0032

AUTHOR: Moguchiy, L. N.

ORG: none

TITLE: Increasing the deformability of brittle materials

SOURCE: AN SSSR. Institut metallurgii. Napryazhennoy sostoyaniye i plastichnost' pri deformirovanii metallov (Stress condition and plasticity during metal deformation). Moscow. Izd-vo Nauka, 1966, 30-32

TOPIC TAGS: ~~brittle material,~~ brittleness marble, ~~marble~~ metal extrusion, ~~marble flow, marble strength, marble hardness~~ metal deformation

ABSTRACT:
Marble specimens, some of which were enclosed in aluminum, copper, or Armco-iron envelopes, were extruded with a reduction of 80--90% through dies with a flat face or with an entry angle of 110 deg. Extrusion was done with a 200-ton press at a ram speed of 11 mm/sec using engine oil mixed with graphite as lubricant. The specimens enclosed in iron envelopes were heated to 600°C and extruded with dies heated to 400°C; all other specimens were extruded at 20°C. In all cases of extrusion without envelopes, extruded marble specimens failed in a brittle manner. Normal flow without destruction of extruded

Card 1/2 UDC: none

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

matching of material and shell thickness to permit a uniform rate of flow along the entire cross section of the core with uniform deformation. Orig. art. has: 4 figures.

SUB CODE: 11, 13/ SUBM DATE: 16Sep65/ ORIG REF: 002

Card 2/2

ORG: none

TITLE: The effect of the material of a shell on the process of discharge during extrusion

SOURCE: AN SSSR. Institut metallurgii. Metallovedeniye legkikh splavov (Metallography of light alloys). Moscow, Izd-vo Nauka, 1965, 210-216

TOPIC TAGS: metallography, shell structure, mechanical property, hardness, metal extrusion, aluminum alloy, hardness testing machine / D16 aluminum alloy, VIM-1M hardness testing machine

ABSTRACT: The extrusion of metal shells of varying mechanical properties was investigated. The principal property used as a measure of material quality after extrusion was the material hardness, which was measured for several specimens on the VIM-1M machine. For aluminum and alloy D16, the microhardness measurements were supplemented with data presented by M. G. Lozinskiy (Vysokotemperaturnaya metallografiya, Mashgiz, 1956). A Brinell device was used to measure the hardness of copper and lead. Shell forms were extruded and studied to analyze the joint effects of mechanical properties of the extruded material and the type of extruder core used. It was found that both the mechanical properties and the core type exert a very significant effect on the flow process. Shells of a material with low resistance to

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metal more uniform and also increased the uniformity of strain throughout the object. However, encasing the blank in a metal sheath proved considerably more effective in this respect, because the case absorbed the peripheral shearing stresses caused by friction and allowed the extruded metal to flow uniformly through its entire transverse section. The best results were obtained when the encasing metal was 2-2.5 times softer than the core metal. Results obtained here were used in developing the procedure for pressing gray cast iron, chromium iron, and alloys of nickel with aluminum, with titanium, and with other elements. The cast iron samples were either uncased or cased in Armco iron and were heated to 1000C. Other alloys were cased either in Armco iron or in KhN78T (both 10 mm thick). They were heated to 1260C and to 1180C. In all experiments the presence of cases tended to prevent the formation of cracks and produced better results. It is concluded that the properties of extruded metals improve with the thickness of the case and that the use of proper cases makes it possible to extrude extremely brittle materials. Orig. art. has: 4 photographs.

ASSOCIATION: none

SUBMITTED: 00 DATE ACQ: 20Apr64 ENCL: 00

Card 2/2

ACCESSION NR: AP4026248 S/0122/64/000/003/0061/0064

AUTHOR: Moguchiy, L. N. (Candidate of technical sciences)

TITLE: Improving the workability of brittle alloys in extruding

SOURCE: Vestnik mashinostroyeniya, no. 3, 1964, 61-64

TOPIC TAGS: alloy workability, alloy extrusion, brittle alloy, duralumin, copper, aluminum, deformation, shear, die, casing, entry cone, gray cast iron, chromium iron, nickel aluminum alloy, nickel titanium alloy, alloy KhN78T

ABSTRACT: The influence of encasing duralumin, copper, and aluminum alloys on the process of extruding these metals has been studied. Experimental cylinders 46 mm in diameter and 90 mm long were marked with a special mastic to form an internal scale along their diametral plane. Experiments were performed at room temperature and at 400C. A 200-ton press was employed in forcing the metal through a 20-mm die aperture without any lubricant. Flush-faced dies and also dies with 100, 90, and 50° entry cones were used. Most of the samples were encased in aluminum or lead sheaths 3, 8, and 13 mm thick. They were heated in an electric furnace. The rate of extruding was 50 mm/sec. Each sample was cut in two and etched for better visibility of the scale. The presence of the entry cone made the flow of

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ACCESSION NR: AP4011132

tainer. Original article has: 4 figures.

ASSOCIATION: none

SUBMITTED: 00	DATE ACQ: 14Feb64	ENCL: 01
SUB CODE: ML	NO REF SOV: 004	OTHER: 000

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ACCESSION NR: AP4011132

where r_o is the radius of the circumference inscribed into the cell of initial form; r_1 and r_2 are the greater and lesser semiaxes of an ellipse inscribed into the cell after deformation, allowing for shift; $2a_1$ and $2b_1$ are the dimensions of the cell sides of the co-ordinate grid after deformation; γ is the acute angle of the distorted cell. The third component of deformation (along the thickness of the profile) was determined from the equation

$$e_b + e_n + e_m = 0.$$

With a mean degree of profile deformation of 2.33, deformation in the zones farthest removed from the base of the profile attains 2.6 and more. However, the relatively concentrated disposition of the curves indicates rather high uniformity in the distribution of deformations. It was concluded, therefore, that in pressing a shape, the most accelerated run-off of material occurs in the region of the center of gravity of the section. Here the material has a low degree of deformation. In shapes of the type considered in this study, the maximum principal deformation coincides with the longitudinal direction of the piece; however, in individual zones (layers 3 and 4) it is directed along the thickness of the beam. It was further found that in the process of metal run-off the focus of deformation increases, while the size and configuration of the standing zone are determined by the distance from the ball opening contour to the wall of the con-

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ACCESSION NR: AP4011132

processed in aqueous solutions of alkali and nitric acid, and then washed in water. Fig. 1 in the Enclosure shows the coordinate grids fixing the various stages of the run-off process. An analysis of the coordinate grids showed an increase in the depth of the focus of deformation during the run-off process and the formation of a standing zone of the material in the corners formed by the walls of the container and the matrix. With respect to the last two phenomena, a complete analogy is observed with run-off processes through an aperture of circular cross section. An analytical calculation of the local deformations in the grid plane, on the basis of the change in the form and size of its cells, was made according to the following formulas:

$$e_1 = \ln\frac{r_1}{r_0}; \quad r_1 = \sqrt{\frac{1}{2}\left[a_1^2 + b_1^2 + \sqrt{(a_1^2 + b_1^2)^2 - 4a_1^2 b_1^2 \sin^2\gamma}\right]} \qquad (1)$$

$$e_2 = \ln\frac{r_2}{r_0}; \quad r_2 = \sqrt{\frac{1}{2}\left[a_1^2 + b_1^2 - \sqrt{(a_1^2 + b_1^2)^2 - 4a_1^2 b_1^2 \sin^2\gamma}\right]},$$

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ACCESSION NR: AP4011132 S/0182/64/000/001/0010/0012

AUTHOR: Moguchiy, L. N.

TITLE: Distribution of deformations in pressed pieces of irregular outline

SOURCE: Kuznechno-shtampovochnoye proizvodstvo, no. 1, 1964, 10-12

TOPIC TAGS: deformation, deformation configuration dependence, duraluminum, pressed duraluminum, duraluminum deformation, run-off

ABSTRACT: A study of the run-off process was made while pressing duraluminum samples through the eye of a T-shaped form. A coordinate grid with cells of 5.1X5.1 mm was imposed, by the planing method, on one of the halves of the diametric section of each sample. After complete mechanical processing, the samples had a diameter of 46 mm and a length of 97 mm. Pressing was accomplished at 400C by the direct method, without lubrication, on a hydraulic press of 200 tons capacity. In order to eliminate the effect of cooling the instrument, the latter was heated to the temperature of the samples. Run-off was accomplished through a matrix without input bell. The process was studied in the initial run-off stage, in the steady state, and in the terminal period. During the pressing, the plane of the coordinate grid of the samples coincided with the axis of symmetry of the matrix channel. After pressing, the samples were divided into component parts,

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MOGUCHIY, L.N.

Effect of the shape of rings on stressed state and force conditions during upsetting. Trudy Inst.met. no.9:185-192 '62.

(MIRA 16:5)

(Forging)

on the inner surface of the shell. The spot of most intensive deformation in shells lies in front of the punch, and in other studied elements it is located in the plane between the top and bottom die halves, or close to the surface of the die cavities. There are 8 figures.

Card 2/2

AUTHOR: Moguchiy, L.N.

TITLE: An investigation of hot stamping processes

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, no. 10, 1962, 5-10

TEXT: The metal motion and deformation degrees in separate spots of stampings were studied to provide practical data for 2 classes of axisymmetric elements (1), discs with protrusions and gears and (2) sleeves. The study was conducted since the mathematics of the present theory of elasticity is too complex and insufficient empirical data is available. The metal flow and local deformations were determined by logarithmic calculations and a coordinate network of rods made of the same metal and inserted into holes drilled in the blanks. Duralumin was used for the discs and gears, and AK-6 (AK-6) alloy for the sleeves. The obtained data are shown in three-dimensional diagrams and in photographs of the cross section of blanks taken during and after stamping. The use of coordinates proved effective. In elements with a deep hollow, the metal flows in a direction opposite to the motion of the punch, and in other elements in the burr plane as well as in the perpendicular direction; the deformation in ready stampings is very uneven, in shells it is more uneven than in other elements, and the zone of highest deformation borders

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D207/D308

Effect of the shape ...

drical formers with initially concave outer walls produced higher pressures than formers with initially convex outer walls. When a sample alone was subjected to pressure, without compressing the copper or iron former, (case B), higher compressions were achieved then in case A. In case B cylindrical formers with straight outer walls were more effective than those with concave or convex walls. Band-shaped formers increased the compression by raising the hydrostatic pressure in a sample. There are 6 figures and 3 tables.

Card 2/2

Lugachiy, L. N.

TITLE: Effect of the shape of formers on the stressed state and force conditions during shock compression

SOURCE: Akademiya nauk SSSR. Institut metallurgii. Trudy, no. 9, Moscow, 1962. Voprosy plasticheskoy deformatsii metalla, 185-192

TEXT: Theoretical calculations of the effect of formers on the compression mechanism do not give satisfactory results. Consequently, the author carried out experimental tests on 10 mm diameter aluminum cylinders placed in copper or Armco iron formers and compressed with a 30 ton ЦНИИТмаш (TsNIITmash) press of ИМЧ-30 (IMCh-30) type. The initial height of 25 mm was reduced to 17 mm (32% deformation). In cylindrical formers the pressure needed for the compression of a sample and a former as one system (Case A) was greater than the sum of pressures required to achieve the same result on the sample and the former separately. In case A, cylin-

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The Effect of the Sheath Thickness... S/136/61/000/003/002/004
E193/E183

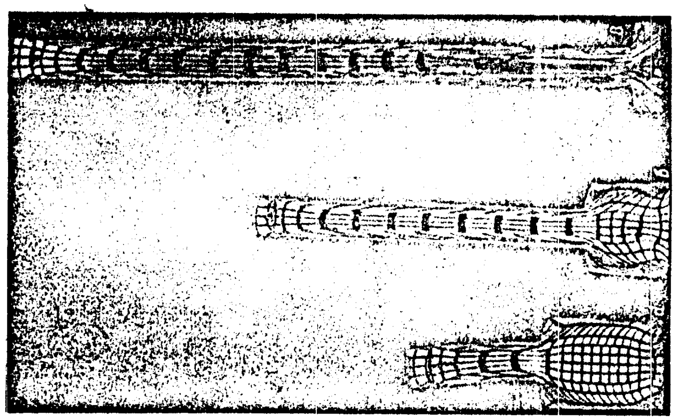

Fig.5

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The Effect of the Sheath Thickness... S/136/61/000/003/002/004
E193/E183

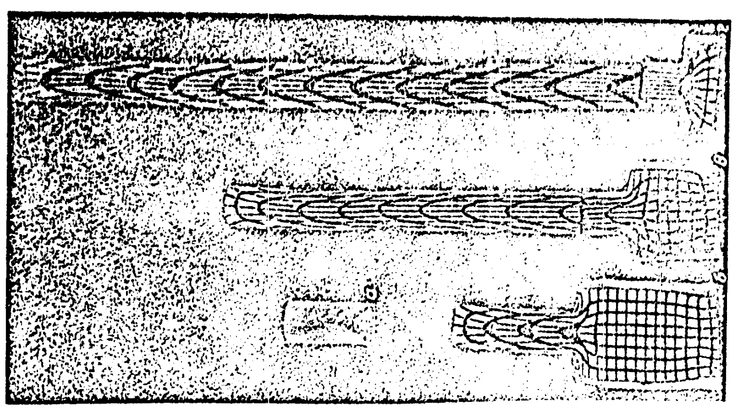

Fig.3

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E193/E183

The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

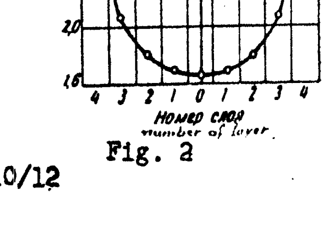

Fig. 2

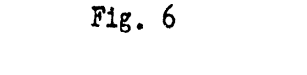

Fig. 6

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The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

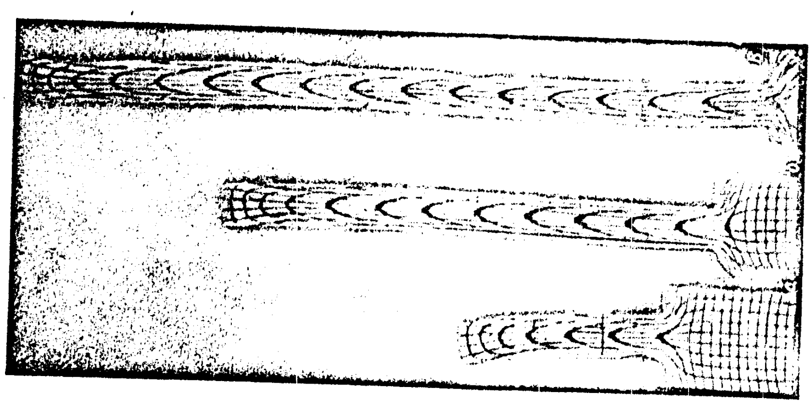

Fig.1

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S/136/61/000/003/002/004
E193/E183

The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

material can be achieved by encasing the extrusion billet in a sheath of a more plastic metal, characterized by a yield point lower than that of the metal being extruded. (2) With increasing thickness of the sheath, the deformation across the cross-section of the extruded rod becomes more uniform; the improvement in the longitudinal direction is less marked. (3) When the sheath thickness reaches a certain critical value, a fundamental change occurs in the flow mechanism of the billet in that shear is almost completely eliminated and the material of the billet is deformed by extension alone, shear being confined to the material of the sheath.

There are 6 figures and 8 Soviet references.

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S/136/61/000/003/002/004
E193/E183

The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

Fig.5, showing the flow pattern at various stages of extrusion of a billet encased in a sheath 13 mm thick. The effect of increasing the thickness of the sheath on the uniformity of deformation is also illustrated in Fig.6, where the degree of deformation, ln r/r_0, is plotted against the distance from the axis of the extruded rod, curves a, б, and в relating to billets extruded in sheath 3, 8, and 13 mm thick respectively; the curves were constructed for a section of the rod 125 mm distant from the front of the billet so that they characterize the deformation during the steady stage of the extrusion process. In addition to other advantages, the marked improvement in the uniformity of deformation of the extruded material, brought about by the application of a plastic sheath, should reduce or completely eliminate the tendency for the formation of coarsely crystalline region in the extruded product which has often been the cause of rejection of extruded parts. The general conclusions reached by the present author can be summarized as follows. (1) More uniform flow and deformation of the extruded

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S/136/61/000/003/002/004
E193/E183

The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

networks at the three stages of the process are shown, photograph (a) showing the appearance of the aluminium disc inserted (prior to extrusion) between the front of the billet and the extrusion die. In this case, the plastic material of the sheath had filled in the dead space in the container, forming in the front of the die a conical entry zone through which the extruded metal flowed. The wall thickness of the sheath was sufficiently large considerably to reduce shear in the outer layers of the extruded billet. The thickness of the sheath in the container increased during the extrusion process, as a result of which the thickness of the aluminium skin on the extruded rod varied, the front of the rod being coated by a very thin aluminium layer which gradually increased with the distance from the leading end. In the presence of a plastic sheath, the gradient of the speeds at which various layers of the metal flowed in the container and through the die was considerably reduced. All these effects were intensified when the thickness of the sheath was increased; this is illustrated in

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network after deformation without shear; γ - the sharp angle of the distorted square element. The distortion of the coordinate network in the case of billets extruded without sheathing corresponded to that obtained normally under industrial conditions during extrusion without lubrication; this can be seen in Fig.1, where the appearance of the network at various stages of extrusion is shown, photographs a, б, and в relating to billets extruded to 70, 45, and 15 mm length. The distribution of deformation across the cross-section of the extruded rod (in the middle of its length) is shown in Fig.2, where the degree of deformation, ln r/r_0, is plotted against the distance (number of consecutive layers) from the axis of the rod. It will be seen that, starting from the axis of the rod, the deformation increased, the rate of increase being particularly rapid in the peripheral regions of the rod where intensive shear had taken place during extrusion. The application of an aluminium sheath, 3 mm thick, brought about a marked improvement in the flow of the extruded metal, as can be seen in Fig.3 where the coordinate

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two halves were separated, and the part with the superimposed coordinate network was given an alkaline etch, followed by a brightening etch in dilute nitric acid and by a rinse in water, after which the coordinate network was examined visually. In the case of billets extruded to 45 mm length, the degree of deformation, e, of various elements of the network was also calculated from a formula

$$e = \ln \frac{r}{r_0} ;$$

$$r = \sqrt{\frac{1}{2}\left[a^2 + \left(\frac{b}{\sin \gamma}\right)^2\right] + \frac{1}{2}\sqrt{\left[a^2 + \left(\frac{b}{\sin \gamma}\right)^2\right]^2 - 4a^2b^2}} ,$$

where: r_0 - radius of a circle inscribed in a square of the original network; r - the large half-axis of an ellipse inscribed in the same element of the network after deformation (when shear took place); a and b - half-axis of the ellipse inscribed in the element of the

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a network of coordinates in the form of machined grooves, running parallel and normal to the billet axis, was inscribed on the cut face of one half of the billet. Each square of the network measured 5 x 5 mm in the case of the aluminium-encased billets, and 5.1 x 5.1 mm when no sheathing was used. After filling the grooves with a special cement, the two halves of the billet were riveted together with a Duralumin pin. The billets and the container were pre-heated to 400 °C in an electric furnace. A special, dismountable electric furnace was used to maintain the temperature of the container during extrusion. The billets were extruded by the direct method on a vertical press with a container 47 mm in diameter. No lubricant was used, and the metal was extruded under pressure of 200 t through a 20 mm die which had no entry cone, the extrusion speed in all experiments being approximately 50 mm/sec. The flow pattern was examined at various stages of the process, namely after the length of the billet had been reduced to 65, 45, and 17 mm. After removing the partially extruded assembly from the press, the

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readily solidify and lose their lubricating properties. It has been found that better results are obtained if, instead of a lubricant, a sheath is used which is more ductile than the extruded material; the object of the present investigation was to study the effect of the thickness of such a sheath on the flow and uniformity of deformation of extruded metals. To simplify and shorten the experimental work, flow of metal during extrusion of a round bar from a cylindrical billet was studied. The tests were conducted on cylindrical specimens of Duralumin Д16 (D16), some of which were encased in aluminium containers with walls 3, 8, or 13 mm thick. When an aluminium sheath was used, an aluminium disc, 10-12 mm thick, was also inserted between the front of the billet and the extrusion die. The extrusion billets, 97 mm long and 46.5 mm in diameter, were machined from extruded bars which had been split longitudinally through their centres. To facilitate the examination of the specimens after extrusion, split aluminium casings were used which fitted snugly onto the extrusion billets. Before each experiment,

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S/136/61/000/003/002/006
E193/E183

AUTHOR: Moguchiy, L.N., Candidate of Technical Sciences

TITLE: The Effect of the Sheath Thickness on the Flow of Metal During Extrusion

PERIODICAL: Tsvetnyye metally, 1961, No. 3, pp. 75-81

TEXT: With ever widening fields of application of the extrusion process in metal fabrication, the problem of reducing the degree of non-uniformity of deformation, inherent in the process, becomes more and more important. Non-uniform deformation of the extrusion material is undesirable for two reasons: it increases the extrusion pressure required, and, by setting up an internal tensile stress, it reduces the plasticity of the metal. Since friction between the surface of the extrusion billet and the container walls is the main cause of non-uniform deformation, considerable improvement can be achieved by the application of suitable lubricant; various glasses or enamels have been recently used for this purpose. This is not an ideal solution because under high pressure a glass lubricant tends to be squeezed out and fails to form a continuous lubricating film. In addition, the high melting point glasses which are very viscous,

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for as-cast alloys. The resistance to deformation $p = A/V \ln(H/h)$ was also determined (A is the work of deformation, V the volume of the specimen, H and h the specimen heights before and after deformation, respectively. Fig.5 shows p (kg/mm^2) as functions of the number of impacts (broken lines relate to alloy A, continuous lines to B, upper curve for each alloy indicates as-cast, lower curve the homogenized state). Work hardening and increasing friction lead to the stress rising as the deformation level rises (which also increases the non-uniformity of the specimen). The work showed that homogenization of the alloys reduces their resistance to deformation and somewhat increases their plasticity. There are 5 figures and 4 Soviet references.

best, almost eliminating the microstructural heterogeneities visible at x100 magnification. The effect of homogenization on two heat-resisting nickel-base alloys ("A" and "B"), normally used only in the cast state because of their brittleness, was also studied. Specimens were taken from 120 mm diameter ingots. After holding at 1200°C for 10 hours, both alloys became much more homogeneous. Mechanical properties were measured on 10 mm diameter, 15 mm long specimens; half the specimens were homogenized. Resistance to deformation and the plasticity were determined under dynamic conditions, a 10 kg bob being repeatedly dropped on the specimen from a height of 1.5 m (calculated impact velocity 5.4 m/sec). The temperature giving highest plasticity, 1150°C, was used; specimens being measured and reheated between impacts. Fig.4 shows the deformation energy (kg/mm) as a function of the change in height of the specimen (mm) (curves 1 and 2 relate, respectively, to alloy A, homogenized and not; corresponding curves for alloy B are 3 and 4). There is a considerable increase in deformation at every impact for homogenized alloys and this falls off with decreasing specimen height less rapidly than

18.7000 1416, 1555, 1454

AUTHOR: Moguchiy, L.N.

TITLE: Influence of Homogenization on the Deformability of Metallic Materials

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy. No.7. Moscow, 1960. pp.105-109. Metallurgiya metallovedeniye, fiziko-khimicheskiy metody issledovaniya

TEXT: As shown by the author (Ref.2: "Tsvetnyye metally". 1952. No.1) and others (Ref.1: S.M.Boronov, L.Ya.Shpolyanskiy, A.V.Chitayev. "Aviapromyshlennost'", 1939, No.1), plasticity is lowered by the presence of heterogeneities both inside and outside grains. The increasing use of more alloying components and higher alloying levels makes modern alloys more liable to this effect, which becomes particularly important in low-plasticity (e.g. high-temperature) alloys. In homogenizing annealing diffusion smoothes out heterogeneities. Fick's equation indicates that the process should be carried out at the highest possible temperatures but this is subject to metallurgical limitations. For type MA2 and MA3 magnesium alloys (composition not given) annealing at 400 to 420°C for 5 to 7 hours was found to be

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Longitudinal cross-section (embodying a coordinate net pattern) of a duralumin blank, compressed axially to e = 0.51 under conditions similar to those obtaining in the previous experiments but with the application of aluminium spacers 7 mm thick. In the second stage of the present investigation, the flow of metal during extrusion was studied by the examination of macro-etched extrusion discards of partially extruded billets. It was inferred from the results obtained that more uniform flow of extruded metal can be ensured (particularly during extrusion of asymmetrical sections) by (1) varying the length of the reducing zone of the extrusion die; (2) application of a conically shaped entry zone; (3) more rational positioning of the die aperture and (4) application of compensating die apertures. There are 6 figures and 8 Soviet references.

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0.95 (Fig.2); the diagrams superimposed on the sections, shown in Fig.1 and 2, illustrate the distribution of e between various parts of the blank. The diagram, reproduced in Fig.3, shows the displacement of discrete volumes of the blank, the beginning and the end of each curved vector indicating the position of a particular volume of the blank before and after forging. Fig.1 to 3 demonstrate clearly the high degree of non-uniformity of deformation of blanks, hot-worked in the manner described, and show that the higher the total degree of deformation, the more irregular is the flow of metal. It will be seen also that the metal near the contact zones (i.e. adjacent to the flat faces of the blank) was least deformed, that in the central regions having undergone maximum deformation. The deformation was symmetrical in respect to planes, defined by both the vertical and horizontal axes of symmetry of the blank. The character of the flow of metal during hot-forging can be radically changed if the contact friction is eliminated by the application of sufficiently thick spacers of a ductile material, placed between the blank and the press. The greatly increased degree of uniformity of flow and deformation achieved by these means is illustrated in Fig.4. This shows a

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1.1400 also 1413, 1454

S/509/60/000/007/007/014
E193/E483

AUTHOR: Moguchiy, L.N.

TITLE: Irregular Flow of Metal During Forging and Extrusion

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.7. Moscow, 1960. pp.72-77. Metallurgiya metallovedeniye, fiziko-khimicheskiy metody issledovaniya

TEXT: After discussing the effect of irregular flow of metals during plastic working operations on the properties of components fabricated by this method and the inadequacy of the analytical methods of studying the flow of metals, the present author presents some experimental results obtained by the coordinate net pattern method. The flow of metals during forging was studied in the first stage of the investigation. To this end, duralumin blanks (50 mm in diameter, 70 mm high), pre-heated to 400°C, were axially compressed without lubrication in a 200 t press. The results are reproduced in Fig.1 and 2, which show longitudinal cross-sections of blanks compressed in one operation to attain the mean degree of deformation ($e = \ln(H/h)$, where H and h are the initial and final height of the blank) of 0.46 (Fig.1) and

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case as the filler material, owing to its neutral chemical properties and high viscosity. The initial dimensions of the assemblies are given in Table 2. Top and bottom steel plates, 1 mm thick in specimens No.1 and 2, 6 mm thick in specimen No.3, were used. The experiments were carried out on assemblies heated up to 1150°C, 52% reduction in height having been attained in one forging operation. The cross-section of specimen No.3 tested in this manner is shown in Fig.5. In no case was cracking of the blanks observed. Since the Ni-base alloys, used in these experiments, cannot be deformed without cracking to more than 20 to 30% reduction in thickness if the conventional press-forging technique is used under the same conditions of temperature and deformation rates, the results of the present investigation prove conclusively the effectiveness of the method studied.
Acknowledgments are made to Corresponding Member AS USSR I.M.Pavlov who directed the work. There are 5 figures, 2 tables and 8 Soviet references.

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used to fill the gap between the blank and the sheath. The initial dimensions of the experimental assemblies are given in Table 1. Typical results are reproduced in Fig.2 which shows longitudinal cross-sections of specimens No.1 (a) and No.2 (b), press-forged to 57% reduction in height. Fig.3a and b show the cross-sections of specimens No.3 and 4 deformed to 36 and 65% reduction in height, respectively. The non-uniform character of the deformation was indicated by the tendency of the blanks to become barrel-shaped. The filler materials performed their function satisfactorily and no voids were formed even after heavy deformations. The liquid filler medium exerted more uniform pressure but required extra precautions in use. It is, therefore, more convenient to use powder fillers which are easier to contain in the gap. In both cases the risk of leaking can be minimized by closing both ends of the assembly with the aid of plates, glued or welded to the sheath. After deriving a formula which showed that the pressure, exerted by the filler material on the blank, is approximately doubled in the course of the press-forging operation, experiments were conducted on blanks of a heat-resistant Ni-base alloy, encased in low-carbon steel sheaths. Glass was used in this

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the blank is not always uniform, while different mode of deformation of these two components may introduce undesirable shearing stresses in the surface layers of the blank. The object of the present investigation was to study a modification of this method in which uniform lateral pressure is exerted on the blank by a fluid medium filling the space between the blank and the sheath. A condition necessary for this method to be effective is that the volume, enclosed by the sheath, must decrease when the sheath is axially compressed and the object of the preliminary experiments was to check whether such an increase in volume does, in fact, take place. The tests were conducted in duralumin (cylindrical and prismatic) and steel ЭИ435 (EI435) (cylindrical) sheaths of various sizes, axially compressed on a 100 t forging press between unlubricated plates, pre-heated to 400°C; the duralumin and steel test pieces were pre-heated to 400 and 1100°C, respectively. In every case, the volume enclosed by the sheath decreased gradually with increasing degree of deformation (reduction in height). In the next series of experiments, duralumin blanks encased in duralumin sheaths were press-forged at 400°C, liquid (KNO_3 + $NaNO_3$) or powder (AL_2O_3) medium having been

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1.1400 also 1454, 1496

E193/E483

AUTHOR: Moguchiy, L.N.

TITLE: Forging of Blanks With the Application of Uniform Lateral Pressure

PERIODICAL: Akademiya nauk SSSR. Institut metallurgii. Trudy, No.7. Moscow, 1960. pp.65-71. Metallurgiya metallovedeniye, fiziko-khimicheskiy metody issledovaniya

TEXT: One of the expedients used to prevent cracking of relatively brittle alloys, hot-worked in forging presses, is to encase the blank in a tightly fitting sheath so as to deform the material under conditions approaching hydrostatic (tri-axial) compression, the added benefit of the sheath being that it acts as a heat insulator, thus increasing the period during which the blank remains hot and plastic. The main shortcoming of this method is that the sheath is liable to buckle in compression, particularly when its height is more than 3 times its wall-thickness; in the regions where buckling has caused the formation of a gap between the sheath and the blank, the latter is no longer subjected to tri-axial compression and will readily crack. Even in the absence of a definite gap, the pressure exerted by the sheath on

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PHASE I BOOK EXPLOITATION SOV/3559

Akademiya nauk SSSR. Institut metallurgii. Nauchnyy sovet po probleme zharoprochnykh splavov

Issledovaniya po zharoprochnym splavam, t. 5 (Investigations of Heat-Resistant Alloys, Vol 5) Moscow, Izd-vo AN SSSR, 1959. 425 p. Errata slip inserted. 2,000 copies printed.

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

PURPOSE: This book is intended for metallurgical engineers, research workers in metallurgy, and may also be of interest to students of advanced courses in metallurgy.

COVERAGE: This book, consisting of a number of papers, deals with the properties of heat-resisting metals and alloys. Each of the papers is devoted to the study of the factors which affect the properties and behavior of metals. The effects of various elements such as Cr, Mo, and W on the heat-resisting properties of various alloys are studied. Deformability and workability of certain metals as related to the thermal conditions are the object of another study described. The problems of hydrogen embrittlement, diffusion and the deposition of ceramic coatings on metal surfaces by means of electrophoresis are examined. One paper describes the apparatus and methods used for growing monocrystals of metals. Boron-base metals are critically examined and evaluated. Results are given of studies of interatomic bonds and the behavior of atoms in metal. Tests of turbine and compressor blades are described. No personalities are mentioned. References accompany most of the articles.

AVAILABLE: Library of Congress

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no. 4:66-70 Ap '58. (MIRA 11:5)

(Forging)

SOV/137-58-10-20880

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 10, p 75 (USSR)

AUTHOR: Moguchiy, L.N.

TITLE: The Pressworking of Metals and Alloys of Low Ductility (Obrabotka davleniyem maloplastichnykh metallov i splavov)

PERIODICAL: V sb.: Legkiye splavy. Nr 1. Moscow, 1958, pp 423-438

ABSTRACT: An investigation is made of the deformability of alloys of low ductility and of the character of metal flows when they are upset in retainers of various wall thicknesses, and the hydrostatic pressure on the specimen due to the retainer is determined. The specimens were made of AMg-7, MA2, and MA3 alloys. It is established that the use of retainers made of ductile materials of adequate strength increases the deformation of billets of low ductility. It is possible to deduce the ratio of retainer pressure upon the specimen from the starting dimensions and the degree of deformation. A considerable unevenness of deformation is observed in upsetting. The upsetting of a specimen without a retainer results in tensile radial and tangential stresses.

Yu.L.

Card 1/1

1. Metals--Processing 2. Metals--Deformation

Moguchiy, L. N.

"Working by Pressure of Low Plasticity Light Metals and Alloys", pp 423-438, Legkiye Splavy, Vol I, Metallovedeniye, Termicheskaya Obrabotka, Lit'ya i Obrabotka Davleniyem, Izd. -vo. Akademii Nauk S.S.S.R. Moscow, 1958, 498 pp.

MOGUCHIY, Leonid Nikolayevich; SAVITSKIY, Ye.M., otvetstvennyy redaktor; PINKHUSOVICH, L.L., redaktor izdatel'stva; ZEMLYAKOVA, T.I., tekhnicheskiy redaktor.

[Working metals under pressure] Obrabotka metallov, davleniem. Moskva, Izd-vo Akad.nauk SSSR, 1957. 198 p. (MLRA 10:4)
(Metalwork)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

MOGUCHIY, LEONID NIKOLAYEVICH

Obrabotka Metallov Davleniyem (Metals pressing) Moskva, Izd-Vo Akademii Nauk SSSR, 1957.

198 P. Illus., Diagrs., Graphs, Tables (Akademiya Nauk SSSR, Nauchno-populariya Seriya)

"Literatura": P. 197.

Moguchiy, L. N.

"Use of Rings to Increase the Deformability of Low-Plasticity Alloys", Research on Heat-Resistant Alloys, Vol 1, (Issledovaniya po Zharoprochnym Splavam), Akademii Nauk S.S.S.R., Moscow, 1956 (TA 490 AK 13i, Vol 1).

SOV/124-58-5-6166

Translation from: Referativnyy zhurnal, Mekhanika, 1958, Nr 5, p 159 (USSR)

AUTHORS: Drits, M.Ye., Moguchiy, L.N.

TITLE: Dynamic Mechanical Properties of MA9 Alloy at Elevated Temperatures (Mekhanicheskiye svoystva deformirovannogo splava MA9 pri povyshennykh temperaturakh)

PERIODICAL: V sb.: Prochnost' metallov, Moscow, AN SSSR, 1956, pp 190-198

ABSTRACT: Investigation of the plastic and strength properties of MA9 alloy at room temperature and at elevated temperatures with different testing rates is described. The experiments were carried out with both static and dynamic application of forces.

Reviewer's name not given

1. Alloys--Mechanical properties 2. Alloys--Thermodynamic properties

Card 1/1

NOGUCHIY, L. N.

"The Use of Yokes for Increasing the Deformability of Low Plasticity Alloys," an article in the book Investigations of Heat-Resistant Alloys, publ. by AS USSR, Moscow, pp. 115-123, 1956. 160 pages.

Sum. No.1047, 31 Aug 56

Inst. Metallurgy im. A. A. Baykov

MOGUCHIY, L.N.

The Committee on Stalin Prizes (of the Council of Ministers USSR) in the fields of science and inventions announces that the following scientific works, popular scientific books, and textbooks have been submitted for competition for Stalin Prizes for the years 1952 and 1953. (Sovetskaya Rossiya, Moscow, No. 22-40, 20 Feb - 3 Apr 1954)

Name	Title of Work	Nominated by
Gubkin, S.I. Moguchiy, L.N. Savitskiy, L.N. Zatulovskiy, M.I. Mikityuk, V.D. Volkov, S.S. Chirkov, B.P. Imshennik, B.K.	"Deformability of Magnesium Alloys"	Institute of Metallurgy, Academy of Sciences USSR

SO: W-30604, 7 July 1954

MOGUCHIY, L.N., kandidat tekhnicheskikh nauk.

Increasing the plasticity of magnesium alloys for forging. Vest.mash. 33 no.11:58-62 N '53. (MLRA 6:12)

(Magnesium alloys) (Forging)

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

1. GUBKIN, S. I.; ZATULOVSKIY, M. I.; MOGUCHIY, L. N.

2. USSR (600)

4. Deformation (Mechanics)

7. Deformation of magnesuim alloys. Vest.mash., 33, no. 1, 1953.

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

MOGUCHIY, L.N., kandidat tekhnicheskikh nauk.

[redacted]

Flow of metal in dies. TSvet.met. 26 no.4:54-57 Jl-Ag '53.
(MIRA 10:10)

(Dies (Metalworking)) (Deformations (Mechanics))

APPROVED FOR RELEASE: 06/23/11: CIA-RDP86-00513R001134900031-6

MOGUCHIY, L.N.

B. T. R.
V. 3 No. 3
Mar. 1954
Metals- Mechanical
Working

3895* Investigation of the Nature of Deformation During Free Upsetting and Upsetting in Forms. (Russian.) L. N. Moguchii. *Izvestiia Akademii Nauk SSSR, Otdelenie, Tekhnicheskikh Nauk*, 1953, no. 10, Oct., p. 1475-1479 + 1 plate.

Forms were found to increase the nonuniformity of deformation and to decrease plasticity of the forging. Deformability was increased if negative hydrostatic stress was developed in the blank. Table, graph, photographs. 3 ref.

1. MOGUCHII, L. N.; Volkov, S. S.; Desyatkov, M. D.; Frolov, A. P.; Krasnov, N. T.; Gubkin, S. I.; Zatulovskii, M. I.

2. USSR (600)

7. Forge-Stamping Production Deformability of Magnesium Alloys, Herald of Machine Construction No. 1, Jan 53

9. Compilation of Information of the USSR Machine and Machine Tools Industry Contained in Soviet Publications. AFIC. Restricted.

MOGUCHIY, L. N.

USSR/Metallurgy - Magnesium Forgings 11 Oct 52

"Possibility of Wide Application of Magnesium Forgings in Machine Construction," S. I. Gubkin, Active Mem, Acad Sci Belorussian SSR; S. S. Volkov, and L. N. Moguchiy

"Dok Ak Nauk SSSR" Vol 86, No 5, pp 929-931

Deformation of Mg alloys by forging was studied in 1937 at Inst of Gen and Inorg Chem, Acad Sci USSR, and later at Inst of Metallurgy, Acad Sci USSR. It was found that wrought products of light alloys may be substituted by forged Mg alloys. Received 11 Aug 52

PA 245T25

MOGUCHIY, L. N.

Alloys

Flow of alloys with a magnesium base during pressing. Vest. mash., 32, no. 1, 1952.

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"Investigation of the Homogenization Process, Character of Flow in Pressing, and Anisotropy of the Outgoing End of Pressed Bars of Magnesium Alloys." Thesis for degree of Cand. Technical Sci. Sub 30 Jun 49, Moscow Inst of Non-ferrous Metals and Gold imeni M. I. Kalinin.

Summary 82, 18 Dec 52, Dissertations Presented for Degrees in Science and Engineering in Moscow in 1949. From Vechernyaya Moskva, Jan-Dec 1949.

1. Predsedatel' fabrichnogo komiteta profsoyuza Orshanskogo l'nokombinata.

(Trade unions) (Construction industry)

MOGUCHIY, A.M.

Electron microscope study of phages active against enteropathogenic Escherichia coli. Trudy LSGMI [illegible]

Morphology of some bacteriophages of the T series. Ibid.:[illegible]

Morphology of the lysis of Escherichia coli by the T series phages. Ibid.:232-253

Use of phase-contrast microscopy in the observation of the development of phagolysis of streptococcus aureus. Ibid.:[illegible]

Use of phase-contrast and anoptral microscopy in the examination of viruses by Morozov's method. Ibid.:275-27[illegible] (MIRA 1[illegible])

1. Kafedra mikrobiologii Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta (zav. kafedroy - prof. M.N.Fisher).

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BORISOV, L.B.; MOGUCHIY, A.M.

Biological characteristics of phages of enteropathogenic intestinal bacteria. Report No.2: Morphology, adsorption, reproduction, and resistane of intestinal phages O 111 to the action of physical and chemical factors. Zhur.mikrobiol.epid.i immun. 33 77-83 My '62.

1. Iz Leningradskogo sanitarno-gigiyenicheskogo meditsinskogo instituta.
(ESCHERICHIA COLI) (BACTERIOPHAGE)