SOV/133-58-11-15/25

AUTHOR: Tselikov, A.I., Corresponding Member of the Ac.Sc.USSR

TITLE: Main Trends in the Development of the Production of Rolled Products and Tubes in the Next Few Years (Osnovnyye napravleniya v razvitii proizvodstva prokata i trub na blizhayshiye gody)

PERIODICAL: Stal', 1958, Nr 11, pp 1005 - 1011 (USSR)

ABSTRACT: The rate of development of production of rolled products in the USSR is compared with that in the leading capitalistic countries and an assessment of the need to increase the output of the individual rolled products within the next few years in the USSR is made. It is concluded that during 1959-65, the main development should be in the production of sheet steel, thin-walled tubes of large and small diameters and various rolled products of economical profiles. The main direction in the development of sheet steel should be the speedy construction of continuous mills for wide strip and plate mills with the width of rolls of 4 000 - 4 500 mm. In the field of construction of tube mills, the main attention should be directed to the construction of mills for the production of welded tubes of diameters from 1 100 - 1 200 mm (of a type similar to that in the Chelyabinskiy zavod (Chelyabinsk

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Main Trends in the Development of the Production of Rolled Products and Tubes in the Next Few Years

Tube Works) and for the production of thin-walled welded tubes and seamless tubes of diameters up to 100 and 300 mm. In order to develop the production of economic profiles, it will be necessary to construct a number of new mills, primarily continuous mills 400 for rolling thin profiles, mills for the production of welded thin-walled tubes, for rolling thin bent profiles, for rolling wagon axles and various periodical profiles. There are 3 figures, 3 tables and 9 references, 8 of which are Soviet and 1 English.

Card 2/2

BARDIN, I.P., akademik; DYMOV, A.M., prof., doktor khim.nauk; DIKUSHIN, V.I.; akademik; TSELIKOV, A.I.; OTLEV, I.A., inzh. (g. Khimki, Moskovskoy oblasti).; DEM'YANYUK, F.S., prof., doktor tekhn.nauk; RYBKIN, A.P., prof., doktor tekhn.nauk; YAKUSHEV, A.I., prof., dokt. tekhn.nauk; KIDIN, I.N., prof. doktor tekhn.nauk; KOROTKOV, V.P., dots., kand. tekhn.nauk; SHUKHGAL'TER, L.Ya., dots., kand.tekhn.nauk; KUKIN, G.N., prof., doktor tekhn.nauk.

Every specialist should know the principles of of standardization. Standartizatsiia 22 no.4:34-40 Jl-Ag '58. (MIRA 11:10)

1.Chlen-korrespondent AN SSSR (for TSelikov). 2.Predsedatel' tekhniko-ekonomicheskogo soveta Mosoblsovnarkhoza (for Rybkin). 3.Direktor Moskovskogo instituta stali imeni I.V. Stalina (for Kidin). 4.Direktor Moskovskogo vechernego mashinostroitel'nogo instituta (for Korotkov).
(Standardization--Study and teaching)

TSELIKOV, A.I.; KOROLEV, A.A., kand. tekhn. nauk.

Modern rolling mills in England. Vest. mash. 38 no.3:72-77 Mr '58.
(MIRA 11:2)

1. Chlen-korrespondent AN SSSR (for Tselikov).
(England--Rolling mills)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756930005-5"

28(1) PHASE I BOOK EXPLOITATION SOV/2156

Soveshchaniye po kompleksnoy mekhanizatsii i avtomatizatsii tekhnologicheskikh protsessov. 2nd, 1956.

Avtomatizatsiya mashinostroitel'nykh protsessov; /trudy soveshchaniya/, tom. 1: Goryachaya obrabotka metallov (Automation of Machine-Building Processes; Proceedings of the Conference on Over-All Mechanization and Automation of Technological Process, Vol 1: Hot Metal-Forming) Moscow, 1959. 394 p. 5,000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Institut mashinovedeniya. Komissiya po tekhnologii mashinostroyeniya.

Resp. Ed.: V.I. Dikushin, Academician; Compiler: V.M. Raskatov; Ed. of Publishing House; V.A. Kotov; Tech. Ed.: I.P. Kuz'min.

PURPOSE: The book is intended for mechanical engineers and metallurgists.

COVERAGE: The transactions of the Second Conference on the Over-All Mechanization and Automation of Industrial Processes, September 25-29, 1956, have been published in three volumes. This book, Vol. I, contains articles under the general title, Hot Working of Metals. The investigations described in the book were conducted by the Sections for Automation and Hot Working of Metals, under the direction of the following scientists: casting - P.N. Aksenov, D.P. Ivanov and G.M. Orlov; forming - A.I. Tselikov, A.D. Tomlenov and V.T. Meshcherin; welding - G.A. Nikolayev, B.I. Frolov and G.A. Maslov. There are 183 references: 142 Soviet, 34 English, 6 German, and 1 French.

TABLE OF CONTENTS:

PART I. AUTOMATION OF CASTING PROCESSES

PART II. AUTOMATION OF METAL FORMING UNDER PRESSURE

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SOV/130-59-2-8/17

AUTHOR: Tselikov, A.I., Corresponding member of AS USSR,
Rokotyan, Ye.S., Doctor of technical sciences,
Shor, E.R., Candidate of technical sciences

TITLE: New Rolling Mills (Novyye prokatnyye stany)

PERIODICAL: Metallurg, 1959, Nr 2, pp 21-25 (USSR)

ABSTRACT: It has been planned to increase the output of rolled iron and steel products to between 65 and 70 million tons per year by 1965 in the USSR, which represents an increase of 52 to 64% in comparison with the output for 1958. A large increase in the output of rolled non-ferrous metal products has also been planned, especially with reference to alloys of aluminium, magnesium, copper and titanium. These increases will be required mainly in connection with the production of sheet metal, tubes, formed sections, steel girders etc and will necessitate the construction of new rolling mills as well as improvement of many already in use, under the following headings:-

Sheet Rolling Mills

Continuous rolling mills for the production of broad

sheet, 1.5 to 10 mm in thickness, are considered to be of greatest advantage in return for capital outlay and the construction of such mills will therefore receive the main attention during the next 10 to 15 years. These mills will weigh up to 18,000 tons complete and will be fitted with rolls having a barrel length of 1700 to 2100 mm. Each mill will roll up to 250 tons of sheet per hour (3.5 million tons per year) from slabs weighing up to 15.5 tons and the output speed of rolled sheet will be up to 15 m per sec. These basic specifications exceed the capacities of similar mills already in operation at home and abroad. New rolling mills for cold reduction of thin sheet have also been planned and will be of the modern 5 stand type, capable of reducing 1000 mm wide sheet from an original thickness of 1.8 to 4 mm to a finished thickness of 0.18 to 0.60 mm. The sheet will be rolled at a maximum output speed of 35 m per sec and will leave the mill in the form of coils, weighing up to 15 tons. The main units of these mills will be driven by motors with a total h.p. of 27,000. An electrolytic de-greasing plant capable of cleaning the sheet at a speed of 5 m per sec and continuous annealing furnaces will be provided behind each such mill. New 2 stand cold reduction mills are planned for increasing the tensile strength of sheet metal at an output speed of up to 32 m per sec and with a yearly output of about 700,000 tons, in the form of tin-plate and galvanised iron sheet, which will be processed at up to 7.5 and 15 m per sec respectively. New reversing mills are now being built, which will be equipped with coilers or roll feed tables, working within re-heating furnaces. The roughing stands of such mills will roll the strip to between 20 and 30 mm in thickness and the finishing stand will reduce the thickness to 1.5 mm. These mills will be made for rolling stainless or heat resisting steels and special alloys, which all require a narrow range of temperature during the rolling process. Much attention has been given to the development of special rolling mills incorporating a planetary action of 20 small diameter rollers, which are spaced equally around one support shaft and are capable of reducing the thickness of the rolled bar by 95 to 98% at a single pass. The output speed of the rolled bar from such mills is slow and the main advantage lies in the reduced relative weight of the complete mill. Planetary mills differing from ones developed abroad will be built to give a more efficient performance and it is expected that continuous casting of steel will be possible in conjunction with the use of such mills.

Tube Rolling Mills

Tube rolling mills of more efficient design are planned for use on pre-formed tubes of large diameter, with seams which have been arc-welded or welded by means of electric heating. Mills (as shown in Fig 1 giving layout of mill for spiral welding of tubes up to 650 mm dia, in use at the Plant im. Il'icha 1) coil unwinder; 2) roller leveller; 3) end shears; 4) butt welder; 5) pinch rolls; 6) edge trimmer; 7) edge shot blaster; 8) flash trimmer; 9) feed rollers; 10) tube former; 11) spiral seam welder; 12) tube cutter) have been built

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New Rolling Mills

in the USSR for the production of spiral welded thin walled tubes with large diameters up to 100 to 1 in proportion to thickness of wall and continuous rolling is possible owing to the use of butt-welded tubes. New mills for the continuous rolling of welded thin-walled tubes of small diameter will be built and will have output speeds of over 7 m per sec. It is expected that a planetary mill (as shown in Fig 2 giving layout of tube welding mill combined with planetary and reduction mills: 1) slab; 2) feed rollers; 3) tunnel furnace; 4) flying welder; 5) flash trimmer; 6) de-scaler; 7) pinch rolls; 8) planetary mill; 9) finishing stand; 10) rotary shears; 11) edge trimmer; 12) feed rollers; 13) induction furnace; 14) welding mill; 15) reduction mill; 16) pinch rolls; 17) flying shears; 18) conveyor rollers to finishing department) can be combined with a continuous tube rolling mill, which will have a welding speed of 2 m per sec and an output speed of 12 m per sec for the finished tube. This totals up to 250,000 tons per year. A demand for large quantities of high quality seamless tubes up to 100 mm diameter, and other

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sections, made from titanium, special heat resisting alloys and stainless steels, is foreseen in connection with the building of modern reactor plants and gas turbines. Planetary rolling mills (as shown in Fig 3, being planetary mill for cold rolling of tubes at the Moscow Tube Works) are suitable for this work and can produce tubes with thin walls. Such mills, of improved design, are also planned for the hot rolling of seamless tubes from 80 to over 160 mm dia. New mills (as shown in Fig 4 giving design of mill stand for cold rolling of tubes: 1) measuring plate; 2) roller; 3) feed stroke; 4) tube; 5) mandril) for the cold rolling of tubes, have been developed in the USSR. These are capable of rolling seamless tubes with very thin walls (under 0.01 of diameter size) from hard metals and alloys. A continuous mill with 10 reduction stands has been developed for similar work and is capable of cold rolling 25 to 40 mm dia tubes at an output speed of 3 m per sec or between 20 and 50 times faster than ordinary cold reduction mills.

Rolling Mills for Profiled Sections with Thin Walls

A continuous rolling mill, containing 18 stands, has been planned for the production of profiled sections with thin walls. This mill is fed with square bars, 12 m long, which are re-heated and joined into a continuous strip, by means of a flying welder. The output speed at the final stand is up to 12 m per sec or equivalent to 350 tons of formed sections per hour and exceeds the output from similar existing mills, relatively to the heavier equipment of the latter.

Bending Mills for Profiled Sections

Among several new mills, planned for cold bending of profiled sections, is one which is fed with strip, measuring 1600 mm in width and 1 to 4 mm in thickness, supplied in coils weighing up to 10 tons. The mill consists of 20 stands, driven by two 280 kW motors working at 700 to 1400 rpm. The speed of profiling is between 0.75 and 3 m per sec and the use of this method, instead of hot rolling, is estimated to give a saving of 15 to 35% in the consumption of steel. The output of profiled sections from such mills is planned to exceed 800,000 tons per year in the near future.

Rolling Mills for Thin Metal Tape

Owing to the expanding demand for large quantities of steel and special alloy tape between 0.2 and 0.001 mm in thickness, new multi-roller cold reduction mills (similar to the type with 20 working rollers shown in Fig 5 where the main stand is indicated at "a") will be built in the near future for rolling the following kinds and sizes of tape, from coils weighing 15 tons, at an output speed of 8 to 10 m per sec or about 125,000 tons yearly per mill:-

1) stainless steel tape, 0.1 mm thick by 1000 mm wide;
2) high carbon steel and hard alloy tape, 0.02 mm thick by 400 mm wide;
3) tape, 0.001 mm thick by 30 to 50 mm wide, made from alloys with special physical properties.

 The main action of the above mills and regulation of the tape thickness will be fully automatic, in order to maintain the required accuracy. The use of such mills enables a saving of between 30 and 40% to be made in the weight of equipment, in comparison with 4 high multi-stand cold reduction mills and gives a higher output, since there is less need for intermediate annealing of the tape. In the near future, hard alloy rollers will be widely used to give greater rigidity and a longer working life between each regrinding operation.

Mills for Rolling of Repetition Circular Profiles and Formed Rotating Parts

A wide variety of manufactured parts may be produced more efficiently by means of rolling a required shape closely to the finished size. For this purpose, rolling mills which have a high output are already in use in the USSR and their number will be increased considerably in the near future for the production of parts such as: (a) ball and roller crushers for cement mills (as shown in Fig 6); (b) formed hubs (similar to bicycle back hub as shown in Fig 7); (c) shouldered rolls, railway wagon axles, loom spindles and other similar hollow or solid parts (by means of the 3 roller type mill as shown in Fig 8). Such mills have produced 400,000 wagon axles per year and have equalled the output of 10 forging hammers or 7 presses, whilst the consumption of metal required for the production of each axle was reduced by approximately 20%. Another advantage is in the saving of floor space. If, for example, 6700 sq m is necessary for the new type of mill, 15000 or 20,000 would be necessary for forging hammers or presses, with an equivalent output. In the near future, automatic production lines, incorporating the use of such mills, will be built in the USSR for the rolling and subsequent finishing of typical machine parts, as described above. There are 8 figures.

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AUTHOR: Tselikov, A.I. (Moscow) SOV/180-59-5-1/37

TITLE: New Technological Processes as the Basis of Automation of Pressure Working

PERIODICAL: Izvestiya Akademii nauk SSSR,Otdeleniye tekhnicheskikh nauk, Metallurgiya i toplivo, 1959,Nr 5, pp 3-10 (USSR)

ABSTRACT: An analysis of various pressure working processes and a study of the possibilities of making them automatic points to the fact that, in order to realize this, the technological process itself must be developed in such a way as to satisfy the demands of automation. One of the most realistic ways in which to make pressure working automatic would be a change from a batch process to a continuous one. From this point of view the most suitable processes are rolling, drawing and extrusion. Where a continuous process is not possible quite a number of tasks of automation are solved by the application of continuous auxiliary operations. One of the original working methods which was developed as a result of extensive study is screw-rolling. This process has found application in automatic steel ball production. Such steel balls are used in great quantities for ball

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SOV/180-59-5-1/37

New Technological Processes as the Basis of Automation of Pressure Working

bearings and ball mills. However, it is possible by means of screw rolling, to make not only balls but also other revolving bodies of relatively short length. Articles having the shape of rings or bushes which are used in great quantities in the manufacture of roll bearings and bicycles are manufactured mainly in horizontal forging presses. In order to solve the problem of producing such rings and bushes automatically a new technological process for the manufacture of such articles by cross-sectional screw rolling has been worked out. The process for the manufacture of bicycle bushes consists of two stages: piercing, and rolling the sleeve thus obtained into a shaped tube. For the manufacture of bearing rings both these operations are accommodated in one pair of rolls (see Fig 1). The next continuous process which has been developed is rolling of round shapes of varying section. An external tensile force is applied to the metal during rolling, which changes the nature of the stressed state in the deformation zone. A rolling mill was developed for the

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New Technological Processes as the Basis of Automation of Pressure Working

manufacture of steplike shafts, rolls and other revolving bodies of varying diameter along their length (see Fig 2). The application of butt welding to metal during drawing, shaping and tube welding, pickling, etc. is one of the most important developments in the automation of rolling processes. The application of the continuous process in hot rolling is one of the most important problems in automation. One of the examples is butt welding of the original billet when it enters the first roll of the continuous mill. In order to make this possible a special "flying" experimental welding machine was developed which during welding moves together with the rolled metal, the front part of which is already between the rolls of the mill. In view of the practical difficulties of welding metal during its movement it is advisable to use a stationary machine instead of the flying welding machine if the sections to be welded are small. Such a process is being developed at present, and its layout is shown in Fig 3.

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AUTHOR: Tselikov, A.I., Corresponding Member of the Ac.Sc.USSR SOV/133-59-5-21/31

TITLE: On Maximum Angles of Bite During Rolling (O maksimal'nykh uglakh zakhvata pri prokatke) (III)

PERIODICAL: Stal', 1959, Nr 5, p 447 (USSR)

ABSTRACT: Further contribution to the discussion relating to maximum angles of bite during rolling. It is stated that the maximum bite angle during the steady state process is fully determined from the equilibrium equation given by B. P. Bakhtinov (Eq (1), p 445 of this issue) which is obtained by projecting into the direction of movement all the forces acting on the metal being rolled. The statement of B. P. Bakhtinov that this angle is always smaller than double the friction angle during bite is correct. However, the reasons for this being so are different from those specified by Bakhtinov.
There are 2 references.

Card1/1

TSELIKOV, A.I.; SMIRNOV, V.V.

History of the development of Russian rolling-mill machinery manufacture. Trudy Inst. ist. est. i tekh. 21:3-43 '59. (MIRA 13:3)

(Rolling mills)

TSELIKOV, A.I.; ROKOTYAN, Ye.S., doktor tekhn.nauk; SHOR, E.R., kand. tekhn.nauk

New techniques in rolling. Metallurg 4 no.3:23-26 Mr '59. (MIRA 12:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya. Chlen-korrespondent AN SSSR (for TSelikov).
(Rolling (Metalwork))

TSELIKOV, A.

The designer and his pay. Sots. trud. 4 no.10:106-107 O '59
(MIRA 13:3)

1. Chlen-korrespondent AN USSR, nachal'nik TSentral'nogo konstruktorskogo byuro metallurgicheskogo masinostroyeniya TSentral'nogo nauchno-issledovatel'skogo instituta tekhnologii i mashinostroyeniya.
(Wages) (Machinery--Design)

PHASE I BOOK EXPLOITATION SOV/5060

Tselikov, Aleksandr Ivanovich, and Shor, Emmanuil Romanovich

Razvitiye proizvodstva prokata v 1959-1965 gg. (Development of Rolled-Stock Production in 1959-1965) Moscow, Metallurgizdat, 1960. 110 p. 2,700 copies printed.

Ed. of Publishing House: V. M. Gorobinchenko; Tech. Ed.: P. Islent'yeva.

PURPOSE: This book is intended for technical personnel of metallurgical and machine industries. It can also be used by skilled workers and students of schools of higher technical education.

COVERAGE: The book deals with basic developmental trends in the production of rolled stock and pipe in the period 1959-1965. New rolling methods are described, providing maximum increase in rolled stock and pipe production. Automation and mechanization of rolling processes are also treated. Technical-economic indices of new rolling equipment, now being designed and installed in Soviet mills under the Seven-Year Plan, are shown. There are 18 references, all Soviet.

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Development of Rolled-Stock (Cont.) SOV/5060

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AVAILABLE: Library of Congress (TS340.T753)

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SOV/133-60-3-13/24

AUTHORS: Tselikov, A. I. (Member-Correspondent of the AS USSR), Paton, B. E. (Academician of the AS USSR)

TITLE: Production of Large-Diameter Welded Pipes in the West German Federal Republic and France

PERIODICAL: Stal', 1960, Nr 3, pp 243-252 (USSR)

ABSTRACT: The authors report in detail on the above subject after having visited pipe plants in France and West Germany in December, 1958. There are 15 figures.

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TSELIKOV, A.I.; MARKOV, V.P., inzh.

Continuous pipe rolling and expanding mills in Italy. Stal' 20 no.6:539-541 Je '60. (MIRA 14:2)

1. Chlen-korrespondent AN SSSR (for TSelikov).
(Italy--Pipe mills)

TSELIKOV, Aleksey Ivanovich; SLOBODYANIK, Aleksey Petrovich; VOLODIN, P.A., red.; MOROZOVA, G.V., red.izd-va; TEMKINA, Ye.L., khud.-tekhn.red.

[Novokuybyshevsk; housing and public construction] Novokuibyshevsk; zhilishchno-grazhdanskoe stroitel'stvo. Pod red. P.A.Volodina. Moskva, Gos.izd-vo lit-ry po stroit., arkhit. i stroit.materialam, 1961. 94 p. (MIRA 14:4)
(Novokuybyshevsk--City planning)

TSELIKOV, A.I.; GRANOVSKIY, S.P.; YEFANOV, V.I.

New technological process for the manufacture of blanks for hollow car axles. Kuz. shtam. proizv. 3 no. 5:4-5 My '61. (MIRA 14:5)
(Rolling (Metalwork)) (Car axles)

S/133/61/000/006/009/017
A054/A129

AUTHOR: Tselikov, A. I., Corresponding Member of the USSR Academy of Sciences

TITLE: Determination of the contact surface during rolling with consideration of the elastic deformation

PERIODICAL: Stal', no. 6, 1961, 526-527

TEXT: The cross-rolling process of thin-walled tubes and sections when cold is characterized by high stresses on the contact surface and inconsiderable radial reduction. The effect of local elastic compression of the rolls and the metal rolled on the contact surface is, therefore, important. A method of calculation has been established and graphs have been plotted with which it is possible to calculate the contact surface with due allowance for elastic deformation. The total width of the contact surface is calculated from

$$b = b_1 + b_2 = \sqrt{\frac{2\,Rr}{R + r}\,\Delta r + b_2^2} + b_2 \qquad (5)$$

where:

$$b_1 \approx \sqrt{\frac{2\,Rr}{R + r}\,(\Delta r + \Delta_1 + \Delta_2)} \qquad (1)$$

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and

$$b_2 \approx 8p \left(\frac{1 - \mu_1^2}{\pi E_1} + \frac{1 - \mu_2^2}{\pi E_2} \right) \frac{Rr}{R + r} \qquad (4)$$

where μ_1 and E_1 = coefficient of Poisson and elasticity modulus for the roll, μ_2 and E_2 = coefficient of Poisson and elasticity modulus for the billet or mandrel in tube-rolling. [Abstracter's note: the other symbols are given in the graph.] In the same way it is possible to calculate the contact surface while making allowance for elastic deformation in longitudinal rolling (Fig. 2). The width of the contact surface in that case is:

$$x_2 \approx 8p \left(\frac{1 - \mu_1^2}{\pi E_1} \right) + \left(\frac{1 - \mu_2^2}{\pi E_2} \right) R \qquad (10)$$

There are 2 figures and 2 Soviet-bloc references.

S/122/61/000/007/005/007
D209/D304

AUTHORS: Tselikov, A.I., Lugovoskoy, V.M., and Tret'yakov, Ye.M.

TITLE: Basic theory of diametrical rolling and cold rolling using two and three roller mills

PERIODICAL: Vestnik mashinostroyeniya, no. 7, 1961, 49 - 54

TEXT: The authors elaborate the problem of using three roller mills as opposed to two roller mills, for the cold rolling of metals. This method, they claim, can be used for the manufacture of cylindrical objects with diameters ranging from 18 to 20 mm, giving a very low surface impurity product. The authors make the following assumptions: The contact between the cylindrical work piece and the rollers takes place along a straight line, or in other words, the resultant displacement is the sum of the elementary rotations through an infinitely small angle. The plastic deformation of the material is shown in Fig. 1. The authors first consider rolling by using only two rollers, and then Fig. 1 will consist of a num-

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ber of triangles representing thevarious zones of plastic deformation due to the pressure exerted on the work piece. They state that these zones of plastic deformation must satisfy the kinematic conditions existing at the boundaries of the plastic deformation zone. This approach is recommended by the authors since it gives the upper limit of the pressure at the contact points, as opposed to the static consideration of loading which would only give the lower limit. They consider the equilibrium of the right hand portion of Fig. 1 to obtain an expression for the contact pressure. In the case of rolling with three rollers, and for section I-I

$$\sigma_y = 2k\left[-\frac{\eta\sqrt{3}+2}{\eta\sqrt{3}}\left(1{,}08\left|\ln\frac{2}{\eta\sqrt{3}+2}\right| - 0{,}02\right) + 1{,}3\sqrt{\eta\sqrt{2}-0{,}1} + 0{,}26\right]. \quad (21)$$

holds, where σ_y - the pressure in I-I; k - plastic constant and η = 2r/b (b = height of contact). To utilize the equations obtained, the area of contact has to be calculated. In the case of not rolling this is given by

$$b = \sqrt{\frac{2Rr}{R + r} \Delta r},$$

where R - roller radius, r - radius of the work piece and Δr deformation due to rolling. It is not valid for the cold rolling of metals because it does not take into account the elastic deformation taking place between the rollers and the metal. Therefore, to obtain a value for B, Fig. 4 is used to illustrate the zones of deformation. Δ_1 and Δ_2 are the local radial elastic deformations of the roller and work piece respectively. In order that the work piece be compressed by an amount Δ_r its center O_1 must move to position O_2 by a distance equal to $\Delta_1 + \Delta_2$.

$$b = b_1 + b_2 = \sqrt{\frac{2Rr}{R + r} \Delta r + b_2 + b_2} \qquad (24)$$

gives the resultant length of contact taking into account elastic deformation. If the absence in symmetry is neglected

$$b_2 \approx \sqrt{4q(k_1 + k_2 \frac{Rr}{R + r}} \qquad (25)$$

applies, where q is the pressure per unit length of the cylinder, and k_1, k_2 are constants, depending on the material of the work piece and roller. $q = 2b_2p$ shows the relationship between p and q. By putting this value of q in Eq. (25)

$$b_2 \approx 8(k_1 + k_2) \frac{Rr}{R + r} p \qquad (26)$$

is obtained. The formation of cavities in the center of the cylinder could be attributed to the very large stresses developing at the boundaries of the plastic regions. Also

$$\sigma_y = 2k\left(\ln \frac{\eta_r}{\eta_0} - \frac{1}{\eta_0} + 1\right), \qquad (19)$$

shows that the maximum tensile stresses occur at the center of the work piece. When using three rollers a cavity of diameter A (Fig. 2) is formed. The authors emphasize that that annular compression reduces the possibility of cavity formation in the center of the work piece, and, if enough tension is developed in the work piece, failure does not occur. Peeling is a great disadvantage of the cold rolling process, and this could be eliminated by using work pieces with smooth surfaces. This method was successful when using steel types 20, 45, ШX (ShKh)9, ShKh15, Y(U)12 and U8. The maximum surface area reduction was 75 %. Cold rolling greatly increases the strength of metals. The percentage reduction in surface area and are the yield stress of steels ShKh9 and U8. There are 10 figures, and 9 references: 8 Soviet-bloc and 1 non-Soviet-bloc. The reference to the English-language publication reads as follows: S. Jonson Identation and Forging and Action of Nasmith Anvil, "The Engineer", 1958, v. 205, N5328.

TSELIKOV, A.I.

Main trends in the design of rolling and pipe mills in the U.S.S.R. Stal' 21 no.10:908-916 O '61. (MIRA 14:10)

1. Chlen-korrespondent AN SSSR.
(Rolling mills) (Pipe mills)

TSELIKOV, Aleksandr Ivanovich; GOLYATKINA, A.G., red. izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Theory of force calculations in rolling mills]Teoriia rascheta usilii v prokatnykh stanakh. Moskva, Metallurgizdat, 1962. 494 p. (MIRA 15:10)

(Rolling mills)

AZARENKO, B.S., kand. tekhn. nauk; AFANAS'YEV, V.D., kand. tekhn. nauk; BROVMAN, M.Ya., inzh.; VAVILOV, M.P., inzh.; VERNIK, A.B., inzh.; GOLUBKOV, K.A.; GUBKIN, S.I., akademik [deceased]; GUREVICH, A.Ye., inzh.; DAVYDOV, V.I., kand. tekhn. nauk; DROZD, V.G., inzh.; YERMOLAYEV, N.F., inzh.; ZHUKEVICH-STOSHA, Ye.A., inzh.; KIRILIN, N.M., kand. tekhn. nauk; KOVYNEV, M.V., inzh.; KOGOS, A.M., inzh.; KOROLEV, A.A., prof.; KUGAYENKO, M.Ye., inzh.; LASKIN, A.V., inzh.; LEVITANSKIY, B.A., inzh.; LUGOVSKIY, V.M., inzh.; MEYEROVICH, I.M., kand. tekhn. nauk; OVCHAROV, M.S., inzh.; PASTERNAK, V.I., inzh.; PERLIN, I.L., doktor tekhn. nauk; POBEDIN, I.S., kand. tekhn. nauk; ROKOTYAN, Ye.S., doktor tekhn. nauk; SAF'YAN, M.M., kand. tekhn. nauk; SMIRNOV, V.V., kand. tekhn. nauk; SMIRNOV, V.S.; SOKOLOVSKIY, O.P., inzh.; SOLOV'YEV, O.P., inzh.; SIDORKEVICH, M.A., inzh.; TRET'YAKOV, Ye.M., inzh.; TRISHEVSKIY, I.S., kand. tekhn. nauk; KHENKIN, G.N., inzh.; TSELIKOV, A.I.; GOROBINCHENKO, V.M., red. izd-va; GOLUBCHIK, R.M., red. izd-va; RYMOV, V.A., red. izd-va; DOBUZHINSKAYA, L.V., tekhn. red.

[Rolling; a handbook] Prokatnoe proizvodstvo; spravochnik. Pod red. E.S.Rokotiana. Moskva, Metallurgizdat. Vol.1. 1962. 743 p. (MIRA 15:4)

1. Akademiya nauk BSSR (for Gubkin). 2. Chlen-korrespondent Akademii nauk SSSR (for Smirnov, TSelikov).
(Rolling (Metalwor))—Handbooks, manuals, etc.)

S/122/62/000/002/001/007
D262/D301

AUTHORS: Tselikov, A.I., Corresponding Member of AS USSR and
Yelinson, I.M., Engineer

TITLE: Basic trends in the development of metallurgical machine building in the USSR in the near future

PERIODICAL: Vestnik mashinostroyeniya, no.2, 1962, 3-10

TEXT: The following points are discussed: 1) New technological processes, direct reduction of iron, converter process with oxygen blowing).2) Increase in the productive capacity of metallurgical assemblies (new blast furnaces of 2700 m^3 capacity using blast furnace gas at 2.5 - 3.7 atm. and air at 1200°C, capacity increase of steel melting plants and introduction of more electric arc steel furnaces, improvements in the productivity of rolling mills and pipe making plants by enlarging the sizes of machinery and increasing the rate of production). 3) Improvements in mechanization and automation of metallurgical plants (partial and eventually full automation of technological processes in blast furnaces, mechanization of steel

Card 1/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756930005-5"

melting plants, rolling mills, and pipe making plants, and introduction of new production control equipment of radioactive or x-ray type). 4) Machinery for protective coating of rolled iron and pipes (tin coating, zinc plating, varnishing, rubber, glass and enamel coating). 5) Introduction of more welded steel and reinforced concrete structures in place of castings. There are 7 figures.

TSELIKOV, A.I.; NOSAL', V.V., doktor tekhn. nauk

Trends in designing pipe mills. Met. i gornorud. prom. no.6: 16-22 N-D '62. (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya. 2. Chlen-korrespondent AN SSSR (for TSelikov).

S/145/62/000/009/004/005
D262/D303

AUTHORS: Tselikov, A.I., Corresponding Member of the AS USSR, Al'shevskiy, L.Ye., Candidate of Technical Sciences and Azarenko, B.S., Candidate of Technical Sciences

TITLE: Continuous tube drawing

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy. Mashinostroyeniye, no. 9, 1962, 145-148

TEXT: The construction and the operational tests of the new machine for continuous tube drawing without end plugging, designed by the authors and tested in 1961, are described in detail. This 5-ton machine for drawing tubes of 13 - 26 mm dia. and wall thickness up to 2 mm, at speeds of 25 - 76 m/min consists basically of three consecutive sections with chain feeding mechanisms, between which drawing dies or rollers are located. Each feeding mechanism is driven separately by an electric motor at speeds of 620 - 1200 rpm. Conclusions: This construction secures stability of the process. The wall thickness and diameter conform to the GOST standards and the

Card 1/2

Continuous tube drawing

S/145/62/000/009/004/005
D262/D308

tube surface is of high quality. The productive capacity of the plant is higher and the elimination of the end plugging saves 3 - 4% of material. There is 1 figure.

ASSOCIATION: MVTU im. N.E. Baumana (MVTU im. N.E. Bauman)

SUBMITTED: July 12, 1962

Card 2/2

TELIKOV, A.I. [TSelikov, A.I.]; ELINSON, I.M.

Main directives of the development of metallurgical machine construction in the U.S.S.R. for the immediate future. Analele metalurgie 16 no.4:5-17 O-D '62.

TSELIKOV, A.I.

Effect of tension on energy consumption during rolling. Stal'
22 no.10:922-923 O'62. (MIRA 15:10)

1. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya.
(Rolling mills)

S/133/62/000/011/001/005
A054/A127

AUTHOR: Tselikov, A. I., Corresponding Member of AS USSR.

TITLE: Theoretical problems of the intensification of rolling processes

PERIODICAL: Stal', no. 11, 1962, 1015 - 1020

TEXT: A survey is given of the theoretical investigations, carried out by Soviet scientists on various problems of cold and hot rolling, with the purpose of intensifying these processes. The studies covered the following items: the possibility of increasing reduction depending on the ductility of the metal; the calculation of friction forces and their relation to the maximum angle of bite; the forces acting on the rolls with regard to the possibility of increasing reduction; the effect of the rolling speed on the forces involved in the rolling process; the possibility of intensifying rolling by stretching the rolled metal at the input and output end of the mill. The considerable improvements achieved by Soviet metallurgists in the intensification of rolling are due to the establishment of certain basic principles, in some cases deviating from conventional ones. It was found that the ductility of the metal does not limit the

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Theoretical problems of the...

S/133/62/000/011/001/005
A054/A127

increase of reduction. Good results can be obtained in this respect by reducing in two directions, perpendicular to each other. The problems of calculating the friction coefficients, of measuring the tangential contact forces during rolling, of determining the distribution of friction forces on the arc of the bite, etc. have also been studied and reliable, simple calculation and experimental methods have been found. It was recognized that when angles of bite are being applied that approach the value of the angle of friction, pressure will be lower than at smaller bite angles. Increasing the rolling rate in cold rolling was found to have no effect on the forces acting on the rolls, whereas in hot rolling they will be increased to some extent. Great improvement is expected from stretching the metal rolled between the stands. This problem has been studied in recent years very intensely, mostly in view of the problems of continuous rolling. Formulae to calculate the widening of the rolled strip under the effect of stretching were established. It is assumed possible to roll double tee-irons and channel sections by stretching the metal in the rolling process. The theory of multi-motor electric drives for continuous rolling mills operating with stretching the strip has been discussed thoroughly by N. N. Druzhinin. There are 8 figures.

ASSOCIATION: VNIIMETMASh

Card 2/2

TSELIKOV, A.I.

Stresses in periodic-action mills for cold rolling of pipes.
Vest.mashinostr. 42 no.8:64-67 Ag '62. (MIRA 15:8)

1. Chlen-korrespondent Akademii nauk SSSR.
(Pipe mills)

TSELIKOV, A.I. (Moskva)

Objectives of scientific research in the creation of new metallurgical machines and machine assemblies. Izv. AN SSSR. Otd. tekh. nauk. Met. i gor. delo no.3:28-41 My-Je '63. (MIRA 16:7)

(Metalworking machinery--Design and construction)

TSELIKOV, A.I.

Ways for establishing modern metallurgical units. Vest.AN SSSR 33 no.2:44-50 F '63. (MIRA 16:2)

1. Chlen-korrespondent AN SSSR.
(Metallurgical plants)

TSELIKOV, A.I., akademik; VASIL'CHIKOV, M.V., kand. tekhn. nauk

New advanced technology is the basis for the automation of production processes. Mekh. i avtom. proizv. 18 no.10: 1-4 O '64. (MIRA 17:12)

SOURCE: [illegible]

[illegible] analysis, [illegible]

DANILOV, F.A.; SHVEDCHENKO, A.A.; MATVEYEV, Yu.M.; TSELIKOV, A.I.

Arteries of industry. Metallurg 10 no.9:38-39 S '65. (MIRA 18:9)

1. Direktor Pervoural'skogo novotrubnogo zavoda (for Danilov). 2. Direktor Nikopol'skogo yuzhnotrubnogo zavoda (for Shvedchenko). 3. Direktor Ural'skogo nauchno-issledovatel'skogo trubnogo instituta (for Matveyev). 4. Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya (for TSelikov).

L 8131-66 EWT(d)/EWT(m)/EWP(v)/T/EWP(t)/EWP(k)/EWP(...)/EWP(...)
ACC NR: AP5024955 EWA(c) JD/HW/DJ SOURCE CODE: UR/0286/65/000/016/0015/0016

AUTHORS: Antonov, A. V.; Tselikov, A. I.; Dmitriyev, L. D.; Potapov, N. N.

ORG: none

TITLE: Machine for rolling of finned sheets on a press. Class 7, No. 173690 [announced by All-Union Scientific Research and Construction Institute of Metallurgical Machine Construction (Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya)]

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 16, 1965, 15-16

TOPIC TAGS: metal rolling, metal working, metal sheet

ABSTRACT: This Author Certificate presents a machine for rolling of finned sheets on a press, including an undriven roll and a hydraulically driven moving plate (see Fig. 1).

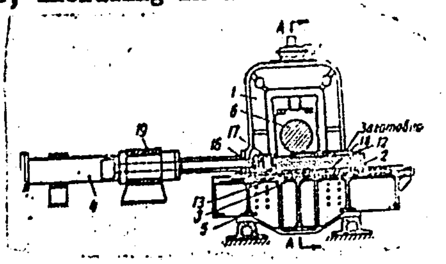

Fig. 1. [Abstractor's note: no nomenclature given]

Card 1/2

L 8131-66

ACC NR: AP5024955

To decrease the hydraulic force requirements, the plate is supported by a linear roller bearing and on the sides is guided by gear racks meshing with gears connected to the ends of one of the rollers of the roller bearing. A second version has provisions for rotating the roll during its heating prior to rolling. Orig. art. has: 1 figure.

SUB CODE: IE/ SUBM DATE: 29Jan63

nw
Card 2/2

TSELIKOV, A.I., akademik; [illegible], doktor tekhn.nauk, prof.; ANUFRIYEV, A.N., inzh.

Flow rates and stresses in metals being rolled. Trudy MATI no.62:67-82 '65. (MIRA 18:10)

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756930005-5"

TSELIKOV, A.I., akademik; MOROZOV, B.A., doktor tekh. nauk; SHUSTOROVICH, V.M., inzh.; GARTSMAN, S.D., inzh.

Selecting the optimum diameter for the supporting rolls of four-high rolling mills. Vest.mashinostr. 45 no.9:24-26 S '65.

(MIRA 18:10)

TSELIKOV, Aleksandr Ivanovich

[Fundamentals of the theory of rolling] Osnovy teorii prokatki. Moskva, Metallurgiia, 1965. 247 p. (MIRA 18:8)

TSELIKOV, A.I., akademik; MEYEROVICH, I.M., kand. tekhn. nauk; GORELIK, V.S., inzh.; ROKOTYAN, S.Ye., inzh.

Relation between unit power consumption and the metal pressure on the rolls. Stal' 25 no.12:1101-1102 D '65. (MIRA 18:12)

L 27948-66

ACC NR: AP6017708 SOURCE CODE: UR/0105/66/000/001/0085/0086

AUTHOR: Bertinov, A. I.; Voronetskiy, B. B.; Gendel'man, B. R.; Girshberg, V. V.; Gromov, V. I.; Druzhinin, N. N.; Kunitskiy, N. P.; Naumenko, I. Ye.; Petrov, I. I.; Vetrov, G. N.; Rusakov, V. G.; Silayev, E. F.; Slezhanovskiy, O. V.; Syromyatnikov, I. A.; Tulin, V. S.; Filin, N. M.; Tselikov, A. I.; Chilikin, M. G.; Yun'kov, M. G.

ORG: none

TITLE: Engineer N. A. Tishchenko (on his 60th birthday)

SOURCE: Elektrichestvo, no. 1, 1966, 85-86

TOPIC TAGS: electric engineering personnel, metallurgic furnace, electric equipment

ABSTRACT: Nikolay Afanas'yevich Tishchenko completed the Khar'kov Electrotechnical Institute in 1930, after working as an electrician in a Metallurgical plant from 1923-1926. He was active in the development of domestically produced electrical equipment for rolling mills and metallurgical furnace works. He was active during WWII in restoring electrical equipment damaged by the Germans. After the war, he was active in developing electrical drive equipment for both domestic and foreign metallurgical plants. He has been active in scientific work, publishing over 45 works in such varied fields as electric drives, equipment reliability and productivity of labor. Orig. art. has: 1 figure. [JPRS]

SUB CODE: 09, 13 / SUBM DATE: none

UDC: 621.34

Card 1/1 BLG

ACC NR: AP6032534 SOURCE CODE: UR/0413/66/000/017/0141/0141

INVENTOR: Tselikov, A. I.; Rozanov, B. V.; Nistratov, A. F.; Gol'man, L. D.; Maksimov, L. Yu.; Pobedin, I. S.; Fridman, A. Z.; Kitain, R. S.; Kurovich, A. N.; Nadtochenko, A. F.; Kaganovskiy, F. I.; Kozhevnikov, V. F.; Zonenko, V. V.

ORG: none

TITLE: Hydraulic press reinforced with wire wrapping. Class 58, No. 185696 [announced by the All-Union Scientific Research Institute for the Planning and Design of Metallurgical Machinery (Vsesoyuznyy nauchno-issledovatel'skiy i proyektno-konstruktorskiy institut metallurgicheskogo mashinostroyeniya)]

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no. 17, 1966, 141

TOPIC TAGS: hydraulic press, reinforced hydraulic press, HYDRAULIC EQUIPMENT, METAL PRESS

ABSTRACT: This Author Certificate introduces a hydraulic press reinforced (see Fig. 1) with wire wrapping. The press includes a cylinder, housing consisting of upper end lower crossmembers and columns with a concave oval-shaped outside surface which makes it possible to wind a reinforcing band or wire around the housing. To improve the technical and economic characteristics and the reliability of the press at the same main parameters, the housing is provided with stiffenning ribs located

 UDC: 621.226

ACC NR: AP6032534

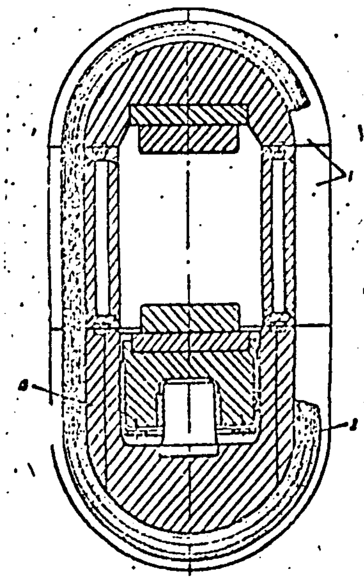

Fig. 1. Hydraulic press reinforced with wire wrapping

1 - Stiffenning ribs; 2 - wrapping; 3 - lower crossmember.

between the wrapping, and the lower crossmember of the press is laminated and serves as a hydraulic cylinder. Orig. art. has: 1 figure.

SUB CODE: SUBM DATE: 20Aug64/

Card 2/2

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756930005-5"

ACC NR: AP7004811 SOURCE CODE: UR/0413/67/000/001/0169/0169

INVENTOR: Tselikov, A.M.; Shor, E.R.; Rokotyan, Ye.S.; Kruglikov, A.V.; Gurevich, A.Ye.

ORG: none

TITLE: Two or four-high mill for rolling variable-section sheets and strips. Class 7, No. 87892

SOURCE: Izobreteniya, promyshlennyye obraztsy, tovarnyye znaki, no.1, 1967, 169

TOPIC TAGS: metal rolling, ~~light alloy rolling, metal~~ rolling mill

ABSTRACT: This Author Certificate introduces a two or four-high mill for rolling one or two-way wedge-shaped sheets and strips from steel and light alloys by means of changing the working rolls' spacing. To increase rolling mill efficiency, a powerful automatic pressure device is used which ensures a constant relation between the rotation speed of the screw-down drives and the working rolls. [AZ]

SUB CODE: 13/ SUBM DATE: 11Mar49/ ATD PRESS: 5116

Card 1/1 UDC: none

FLEYSHMAN, S.M.; TSELIKOV, F.I.; KRUTIKOV, V.I., inzh., red. [deceased]; PONOMARENKO, S.A., red.; BOBROVA, Ye.N., tekhn. red.

[Rock cuts with catch trenches along tracks] Skal'nye vyemki s putevymi ulavlivaiushchimi transheiami. Moskva, Izd-vo "Transport," 1963. 73 p. (Babushkin. Vsesoiuznyi nauchno-issledovatel'skii institut transportnogo stroitel'stva. Trudy no.52). (MIRA 17:3)

FLEYSHMAN, S.M., kand. tekhn. nauk; TSELIKOV, F.I., inzh.

Lateral sections of rock depressions. Transp. stroi. 15 no.7:37-39 Jl '65. (MIRA 18:7)

FLEYSHMAN, S.M., kand.tekhn.nauk; TSELIKOV, F.I., inzh.; FRADKIN, I.Z., inzh.

Protection of the road bed in the proximity of reservoirs.
Put' i put.khoz. 4 no.3:12 Mr '60. (MIRA 13:5)
(Railroad engineering)

FLEYSHMAN, S.M., kand.tekhn.nauk; TSELIKOV, F.I., inzh.

Stability of road beds in areas of new water reservoirs. Transp. stroi. 10 no.11:35-38 N '60. (MIRA 13:11)
(Railroads--Track)

FLEISHMAN, S.M., kand.tekhn.nauk; TSELIKOV, F.I., inzh.

Good manual on track protection against falling rocks ("Protective structures against falling rocks on railroads" by N.M.Roinishvili. Reviewed by S.N.Fleishman, F.I.Tselikov). Put' i put.khoz. 4 no.9: 47 S '60. (MIRA 13:9)

(Railroads--Safety measures) (Roinishvili, N.M.)

SOV/98-59-10-6/20

30(1)

AUTHORS: Fleyshman, S.M., Candidate of Technical Sciences, and Tselikov, P.I., Engineer

TITLE: The Use of Stone Deposits to Protect the Banks of Reservoirs From Erosion

PERIODICAL: Gidrotekhnicheskoye stroitel'stvo, 1959, Nr 10, pp 23-25 (USSR)

ABSTRACT: The article is a description of methods used to counteract erosion in the Ust'-Kamenogrosk reservoir on the Irtysh River in 1953, where sections of the bed of the railroad line Ust'-Kamenogorsk-Zyryanovsk were undermined. It was decided to carry out an experiment by dumping rocks straight into the water in order to cover the bank to a depth of 1.5 m. Rocks of an average weight of 20-50 kgs were dumped over a 100 m long section, the gaps between them being filled with locally obtained loess earth. Subsequent observations in 1954-58 showed that no serious erosion of the bank or distortion of the railroad track had taken place even in icy conditions. A similar experiment, conducted in 1956 on the Kakhovka reservoir, the features of which varied considerably from the pre-

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SOV/98-59-10-6/20

The Use of Stone Deposits to Protect the Banks of Reservoirs From Erosion

vious one, involved the use of stone deposits, provided with 2 layers of filtration material (shell-rock ballast and 20 cm stones). The proposed scheme was considerably altered in practice, the layers not being deposited in an orderly fashion, but nonetheless they proved to be an effective protection against erosive action, succeeding in withstanding waves higher than those which broke the embankment in the initial experiment in 1956. The effective anti-erosion action of even the disorderly dumping of rocks was also noted in the case of the Rybinsk reservoir and that at Kninički (Czechoslovakia). The main advantages of the use of stone deposits are their reliability, resistance to wave-action and erosion, the possibility of the process being entirely mechanized, and simplicity. The 2 methods suggested as being most suitable are illustrated in figs.1 and 2. In the first case the process, by which the bank is shaped artificially, must be completed before the basin is filled, while in the second the reservoir must first be filled, the erosive action of the water thus reducing the cost of the operation. The specifications of the stone deposit must be based on the

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SOV/98-59-10-6/20

The Use of Stone Deposits to Protect the Banks of Reservoirs From Erosion

hydrogeological conditions of the area involved, the size of the rocks being determined according to the formulae of either M.N. Gol'dshteyn and P.S. Kononenko (Ref.1) or of A.M. Zhukovets and N.N. Zaytsev (Ref.2). For a slope of 1:3 the weight of stones required to withstand 1 m waves must be at least 30 kg, and for slopes of 1:2 it must amount to 60 kg; the experiments showed that the lower layers of gravel and fine pebbles served as quite efficient draining systems, while the upper layers required to be composed of a percentage of 60-70% of stones of the appropriate weight, as indicated above, in order to prevent erosion or displacement. There are 2 diagrams and 2 Soviet references.

Card 3/3

FLEYSHMAN, S.M., kand.tekhn.nauk; TSVELODUB, B.I., inzh.; TSELIKOV, F.I., inzh.

Laying out railroad beds on rocky slopes. Transp.stroi. 10 no.7:36-39 Jl '60. (MIRA 13:7)
(Railroads--Earthwork)

FLEYSHMAN, S.M., kand.tekhn.nauk; TSELIKOV, F.I., inzh.

Efficient types of structures to prevent landslides.
Transp. stroi. 16 no.1:43-44 Ja '66.

(MIRA 19:1)

TS[illegible]V, G.

Calculation of the propeller for [illegible]
no. [illegible]27-30 [illegible]

TSELIKOV, M. L.

Pavlov, I. M.

Theory of rolling. M. Pavlov. Reviewed by A. I. Tselikov, M. L. Zaroshchindkiy, L. V. Marmarshtein, O. G. Muzalevskii. Vest. mash. 31, No. 10, 1951.

9. Monthly List of Russian Accessions, Library of Congress, September 1952 1953, Uncl.

TSELIKOV, V., inzh.

Seminar on safety engineering. Avt.dor. 24 no.2:32 F '61. (MIRA 14:3)
(Road construction--Safety measures)

TSELIKOV, V.A.

AUTHOR: Tselikov, V. A. (Moscow) 24-10-3/26

TITLE: Simulating on models the regimes of turbines using heavy gases. (Modelirovaniye rezhimov turbiny tyazhelym gazom).

PERIODICAL: Izvestiya Akademii Nauk SSSR, Otdeleniye Tekhnicheskikh Nauk, 1957, No.10, pp. 19-27 (USSR)

ABSTRACT: The author considers simulation on models of regimes of turbines and turbo-machinery generally based on applying as working media a gas with a small gas constant R and a low temperature. As a result of this, the r.p.m. and the power of the turbine and compressor can be considerably reduced, the experimental set-up simplified and the necessity obviated of dimensional modelling. It is thus possible to use in the model tests turbine blades made of easily machineable or cast materials. The idea of using heavy gases for simulating on models the regimes of turbines was put forward in 1949 by A. V. Kvasnikov (MAI). In the first paragraph, the author deals with the conditions of similarity for various values of the adiabatic index k. In the case of differing k values of the model and of the simulated unit, the numerical criteria in the flow part of the turbine will change and also the physical picture of the flow, particularly in the case of supersonic speeds. However, by

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Simulating on models the regimes of turbines using heavy gases.

model turbine, p_o^o, eq.(3); for the r.p.m. of the model turbine, n^o, eq. (5); the flow rate, eq.(6). According to a dissertation by the author (MAI, 1950), the effective efficiency η_e of the turbine is a function of the same similarity criteria as the efficiency on the wheel circumference; therefore, the effective power can be expressed by eq.(8). Para.3 deals with determining the natural parameters of the turbine from data gained from model tests. Para.4 deals with the choice of a suitable working medium (gas). The authors tested the use for this purpose of CCl_4, the data of this and of other gases considered for use in the experiments are summarised in Table 1, p.25. The experimental set-up is described in para.5 and illustrated in the sketch, Fig.3. The execution of the tests is described in para.6 and the test results are summarised in para.7. All the symbols in the paper relating to the model are denoted by a "small ^{o}" at the top of the respective letter. It is concluded that for a value k^o, differing within certain limits from the value k, satisfactory agreement can be obtained of the criteria M, N_{Re}, u/c and the calculated cross sections of the flow part. However, for conserving equality of the numbers M and M^o it is necessary to change the degree of expansion of the model and for obtaining equality of N^o_{Re} with N_{Re} and of u/c with u^o/c^o it is necessary to select appropriate pressures of the gas at the turbine inflow and appropriate r.p.m. If k and k^o are equal, the degree of expansion remains the same. Disregarding the influence of other disturbances in the analogy taking place due to inequality of the values k^o and k, it can be stated that (at least for a certain class of turbines of small reactivity and average degrees of expansion) maintenance of equality of the criteria M, N_{Re} and u/c for the model and the natural regimes is a necessary and adequate condition of similarity of the operating process. The accuracy of determining the turbine indices according to the data of the model tests is at least equal to those obtained in tests under natural conditions. The influence of such phenomena as changes in the relaxation time, change in the structure of the flow on the indices of the process are obviously within the limits of the experimental accuracy. The calculations show that the here described method is suitable for

TSELIKOV, V.A. (Moskva).

Using heavy gases for modeling operating conditions of turbines. Izv. AN SSSR. Otd. tekh. nauk no.10:19-27 O '57. (MIRA 10:12)

1. Moskovskiy aviatsionnyy institut.
(Gas turbines--Models) (Aerodynamics)

TSELIKOV, V.K., VOLODIN, YE. A.

30315

Khromonikyel' marganantsovaya nyerzhavyeyushchaya stal' dlya myeditsinskikh izdyeliy. (K voprosu tyekhnologii proizvodstva). Myed. prom - st SSSR, 1949, No 4, s. 22-26
8. Mashin vyedyeniye. mashinostroye niye. Priborostroyeniye (Spyetsial' naya mashinostroyeniye - sm po scotvyetstvuyushchim spyets razdyelam)
a Obshchiye Voprosy

SO: LETOPIS' No. 34

PROCESSES AND PROPERTIES INDEX

UK

9

Melting in a cupola using oxygen addition to the blast V. K. Tselikov. *Liteinoe Delo* 7, No. 6, 30 [illegible]. Description of *Met. Abstracts* (in *Metals & Alloys*) 8, 9. Description of expts. in which the blast was oxygenated to bring up the temp. of the metal. The desired results were easily obtained, but the metal was inferior owing to wrong compn. of the charge. M. W. B.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

TSELIKOV, V. K.

PA 18T30

USSR/Steel - Properties
Steel - Metallurgy

May 1947

"Wearing Quality of Steel and Anealing Brittleness," V. K. Tselikov, Factory imeni Il'yich, 3 pp

"Stal'" Vol VII, No 5

Experiments were conducted on steel at 350 to 400°. As with high temperatures, wearing quality took a sharp drop. Type 4XC and 40X steel was used. Graphs and tables of results.

18T30

CA

9

Corrosion resistance and temper brittleness. V. K. Tselikov. *Stal* 8, 724-6(1948).—Development of temper brittleness depends on the tempering schedule and the subsequent cooling. The tempering and subsequent cooling schedule det. the nature of the carbide phase in the steel. The nature of the carbide phase also affects the corrosion resistance of a steel by being responsible for the distribution of cathodic (Fe_3C) and anodic areas. This was proved by a study on chemically different steels in which the relationship between impact brittleness and temper schedule was studied by means of corrosion tests.

M. Hosch

APPROVED FOR RELEASE: 03/14/2001 CIA-RDP86-00513R001756930005-5"

SOV/129-58-10-4/14

AUTHOR: Tselikov, V. K., Candidate of Technical Sciences

TITLE: Influence of Heat Treatment on the Change of the Impact Strength Temperature Curve of Steel (Vliyaniye termicheskoy obrabotki na izmeneniye temperaturnoy krivoy udarnoy vyazkosti stali)

PERIODICAL: Metallovedeniye i Obrabotka Metallov, 1958, Nr 10, pp 17-22 (USSR)

ABSTRACT: Analysis of literary data indicates that for low carbon and low-alloy low-carbon steels the change in the character of the impact strength temperature curve as a function of the regime of heat treatment is as indicated in the graphs Fig.1. This change is characterised by the following: a sharp reduction in the impact strength at room temperature and a considerable reduction of the critical brittleness temperature, as compared with the initial state; a sharp reduction of the impact strength at room temperature without changing the critical brittleness temperature; a sharp reduction in the specific impact strength at room and at lower (-183°C) temperatures. For verifying the correctness of these relations and also for elucidating the effect of the structural factor on the influence of the temperature on the impact strength curve,

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SOV/129-58-10-4/14

Influence of Heat Treatment on the Change of the Impact Strength Temperature Curve of Steel

investigations were carried out on specimens of Steels 12N3 and 12KhN3, the compositions of which are given in Table 1, p 18. The author deals successively with: the influence of the heat treatment during heating above the Ac_3 point on the change in the character of the impact strength temperature curve, graphs Figs.2,3 and 5; the influence of heat treatment in the case of heating to a temperature between the Ac_1 and the Ac_3 points on the change of the impact strength temperature curve, graphs Figs. 6 and 7; the influence of work hardening and ageing on the change in the character of the impact strength temperature curve, graph Fig.8; the influence of the temper brittleness of steel on the change in the character of the impact strength temperature curve, graph Fig.9. The test results for impact bending, graphed in Fig.9, show that slow cooling in the case of tempering brings about an increase of the critical brittleness temperature for the steel 12KhN3, reducing appropriately its impact strength at room temperature as well as during work hardening and ageing. This indicates that the development of temper

Card 2/3

SOV/129-58-10-4/14

Influence of Heat Treatment on the Change of the Impact Strength Temperature Curve of Steel

brittleness is caused not only by structural processes in the boundary zones of the grain but mainly by processes observed throughout the volume of the grain which are similar to ageing processes. Comparison of the results of micro-structural analysis with the results of impact bending tests for the specimens of the two steels after various heat treatments enabled establishing an inter-relation between the changes in the character of the impact strength curve and the changes in the micro-structure of the steel caused by heat treatment; this comparison is made in Table 2.

There are 9 figures and 2 tables.

ASSOCIATION: TsNIITMASh

1. Steel--Mechanical properties 2. Steel--Temperature factors 3. Steel--Heat treatment

Card 3/3

TSELIKOV, V.K.; OFENGENDEN, N.Ye.; DOLGOPOLOV, V.A.

Increasing the wear resistance of coal suction dredger parts. Ugol' 38 no.1:25-28 Ja '63. (MIRA 18:3)

1. Moskovskiy institut radioelektroniki i gornoy elektromekhaniki (for TSelikov). 2. Donetskiy nauchno-issledovatel'skiy ugol'nyy institut (for Ofengenden, Dolgopolov).

SOV/121-58-10-20/25

AUTHOR: Tselikov, V.M.

TITLE: A Special Head for Vertical Milling Machines (Spetsial'naya golovka k vertikal'no-frezernym stankam)

PERIODICAL: Stanki i Instrument, 1958, Nr 10, p 40 (USSR)

ABSTRACT: A special milling head used on vertical milling machines for the cutting of rack teeth is briefly described and illustrated. The attachment is suitable for the form milling of long teeth, having the full length of the longitudinal table travers. There are 2 illustrations including 1 photo.

Card 1/1

AUTHOR: [illegible], V. M., Parfent'yev, V. P., [illegible]

TITLE: [illegible] Capacitive Pulsed Magnetization Apparatus [illegible] yemkostnaya impul'snaya namagnichivayushchaya ustanovka

PERIODICAL: [illegible]ostroyeniye, 1958, Nr 9, pp. 29-30 (USSR)

ABSTRACT: A condenser bank is charged with d.c. rectified from an [illegible] source. If the release button is pressed the condenser bank is discharged across the ignition cathode of the ignitron, resulting in a flash over. As the internal voltage drop in the [illegible] is very small at this moment the anode current rises to a value of about 2 000 A. The total discharge current now [illegible] the magnetization coils which are connected to the anode [illegible] of the ignitron, producing a pulse-shaped magnetic field of short duration which magnetizes the pole pieces. By [illegible] the ignitron a backward current is prevented in any [illegible]. The operation of this apparatus, which is due to K. A. Vo[illegible], necessitates a correct sequence of the switching operations. In order to reduce the danger in operating this apparatus a number of precautionary measures has been taken. There is 1 figure.

Card 1/2

AUTHOR: Tselikov, V.M. SOV-117-58-8-10/28

TITLE: Device for Cutting Cogs on Long Racks (Prisposobleniye dlya narezaniya zub'yev na dlinnykh reykakh)

PERIODICAL: Mashinostroitel', 1958, Nr 8, p 29 (USSR)

ABSTRACT: On horizontal milling machines, cogs can be cut on racks which are only 200-300 mm long. A special device has been developed (Figure 1) which cuts cogs over a length of 800 mm. It may be installed on every vertical milling machine. It may also be used for cutting grooves or for cutting off large strips of material. The device may be turned at any angle of the machine table. It has 2 spindles of 10 and 22 mm in diameter. On the small spindle, cutters with an outer diameter of 32 mm, and on the large spindle with 150 mm, may be fastened. The revolutions of the spindle during work should not exceed 200 per min. There is 1 photo and 1 diagram.

1. Metals - Machining 2. Milling machines - Applications
3. Machine shop practice

Card 1/1

TSELIKOV, Ye.I., inzh.

Selecting conductors with consideration of their reactance.
Prom. energ. 13 no.9:37-38 S '58. (MIRA 11:10)

1. Embanefteproyekt.
(Electric conductors)

TSELIKOV, Ye.I.

Determination of the greatest sag of overhead electric transmission lines at sloping spans. Prom.energ. 16 no.5:50-51 My '61.

(Electric lines—Overhead) (MIRA 14:7)

AUTHOR: Tselikov Ye. I. (Engineer) SOV 94-58-9-23/30

TITLE: Allowing for reactance in selecting wire sizes. (Ob uchete reaktivnogo soprotivleniya pri vybore provodov)

PERIODICAL: Promyshlennaya Energetika, 1958, No.9, pp. 37-38 (USSR)

ABSTRACT: An article by Cand.Tech.Sci. F.F. Vorontsov, in Promyshlennaya Energetika No.6., 1956 described a method of allowing for reactance in choosing the wire size of power circuits. This method requires special tables which have no other use and it is here proposed to use a formula for this purpose. Mean values of reactance are given for various types of transmission line for use in the formula. There is an editorial note that there is no fundamental difference between the formulae proposed by Vorontsov and Tselikov and it is a matter of choice which one prefers to use.

ASSOCIATION: Embanerftaproyekt

1. Electric wire--Selection 2. Electric wire--Electrical properties

Card 1/1

GREBINNIK, Z.G.; TSELIKOVSKAYA, N.K.

Photocolerimetric determination of color of light-colored indene-coumarone resins. Koks i khim. no.1:51-52 '60. (MIRA 13:6)

1. Kadiyevskiy koksokhimicheskiy zavod.
(Indene) (Benzofuran)

8(6), 9(2) SOV/91-59-9-12/33

AUTHOR: Tselikovskiy, I.I., Technician

TITLE: The Experience in Measuring Ohmic Resistance of Oil Circuit Breaker Contacts

PERIODICAL: Energetik, 1959, Nr 9, pp 19-20 (USSR)

ABSTRACT: The author relates his experience in measuring ohmic resistance of oil circuit breakers using ammeters and voltmeters. He states that such measurements are very important, since with an increased resistance of the circuit breaker contacts, an excessive heating of the circuit breaker may be observed. When measuring the contact resistance of VMG-133, VMG-132, VMG-122 for 600 and 1000 amps, of MGG (with arc-extinguishing contacts) for 2000 amps, the oil film between the contacts may have a great influence on the data obtained. The author shows this in a table for the aforementioned transformer types. The influence of the oil film on the circuit breaker contact resistance is smaller with types VM-22, VM-14 and VM-16 (all are

Card 1/2