BELOBORODOV, A.V., red.; BARYSHNIKOV, A.I., red.; BYCHKOV, N.N., red.; KLIMOVA, G.D., red. izd-va; MOCHALINA, Z.S., tekhn. red.

[Construction specifications and regulations] Stroitel'nye normy i pravila. Moskva, Gosstroiizdat. Pt.2. Sec.D. ch.8.[Specifications for planning railroad and highway tunnels (SNiP II-D.8-62)] Tonneli zheleznodorozhnye i avtodorozhnye; normy proektirovaniia (SNiP II-D. 8-62). 1963. 16 p.
(MIRA 16:6)

1. Russia (1923- U.S.S.R.) Gosudarstvennyy komitet po delam stroitel'stva. 2. Gosstroy SSSR (for Beloborodov). 3. Mezhduvedomstvennaya komissiya po peresmotru stroitel'nykh norm i pravil (for Baryshnikov). 4. Gosudarstvennyy proyektnoizyskatel'nyy institut Ministerstva transportnogo stroitel'stva (for Bychkov).   (Tunnels—General)

BYCHKOV, N.N., inzh.

Standard linings of railroad tunnels. Transp.stroi. 15 no.10:47-
49 O '65.   (MIRA 18:12)

BYCHKOV, N. F.

24167   BYCHKOV, N. F. Kratkiye svedeniya o kurganskoy porode krupnogo rogatogo skota.
(Referat). Sov. zootekhniya, 1949, No. 3, S. 77-78.

SO: Letopis, No. 32, 1949.

BYCHKOV, N. P.

Calves

Good text on raising calves ("Raising calves.") Written by A.P. ¹urmalyat. Sots.zhiv.
14, no. 9, 1952. (Reviewed by N.P. Bychkov.)

Monthly List of Russian Accessions, Library of ᶜongress, December 1952. Unclassified.

USSR/Farm Animals. Cattle   Q-1

Abs Jour : Ref Zhur - Biol., No 19, 1958, No 88047

Author   : Bychkov N.P.
Inst   : Moscow Agricultural Academy imeni K.A. Timiryazev
Title   : Breeding the Dairy Cattle Herd in the Sovkhoz "Gorki II"

Orig Pub : Dokl. Mosk. s.-kh. akad. im. K.A. Timiryazeva, 1957, vyp.
            30, ch. 2, 135-142

Abstract : Characteristics and structure of the herd, and methods and
            conditions of breeding work were studied. To improve the
            milk fat content of East Griesian cattle, transfusion of
            the blood of milk-fat Ayshires is recommended.

Card   : 1/1

BYCHKOV, II.P., kand.sel'skokhozyaystvennykh nauk

Crossing black and white cattle with Ayrshires. Izv. TSKhA
no.4:137-148 '58.   (MIRA 11:10)
            (Dairy cattle breeding)

LOBANOV, P.P., BREZHNEV, D.D., ROSTOVTSEV, N.F., POPOV, I.S., NIKOLAYEV,
A.I., SMETNEV, S.I., BURLAKOV, N.M., ARZUMANYAN, Ye.A., BARYSHNIKOV,
P.A., BELYAYEV, N.M., BLOMKVIST, M.S., BORISENKO, Ye.Ya., BURDELEV,
T.P., BYCHKOV, N.P., VSYAKIKH, A.S., DAVIDOV, R.B., KUDRYAVTSEV,
P.N., KUSHNER, Kh.F., LEVANTIN, D.L., NOVIKOV, Ye.A., OZEROV, A.V.,
STARTSEV, D.I., SUKHANOV,N.P., SHVABE, A.K., YURMALIAT,
A.P.,[Jurmalietis, A.P.].

In memory of Academician Efim Fedotovich Liskun. Zhivotnovodstvo 20
no. 7:84-85 Jl '58.
      (Liskun, Efim Fedotovich, 1873-1958)

BYCHKOV, N.P., dotsent, kand. sel'skokhoz. nauk

Breed and productive qualities of the black-and white cattle of
the "Gorki 2" State Farm. Izv. TSKhA no.5:159-180 '59   (MIRA 13:3)
(Kuntsevo district--Dairy cattle)

BYCHKOV, N.P., kand.sel'skokhozyaystvennykh nauk, dots.

Data obtained in judging the form of the udder in cows. Zhivot-
novodstvo 21 no.6:43-46 Je '59.   (MIRA 12:8)

1. Moskovskaya sel'skokhozyaystvennaya akademiya imeni K.A.Timi-
ryazeva.
                        (Udder)

ACC NR: AT6036192   SOURCE CODE: UR/3116/66/277/000/0162/0164

AUTHOR: Bychkov, N. F.; Ivanov, V. D.

ORG: none

TITLE: Using punch card readers in the Ural-2 computer system

SOURCE: Leningrad. Arkticheskiy i antarkticheskiy nauchno-issledovatel'skiy institut. Trudy, v. 277, 1966. Chislennyye metody issledovaniya gidrometeorologicheskikh usloviy v Arktike s ispol'zovaniyem elektronnykh tsifrovykh vychislitel'nykh mashin. (Numerical methods of studying hydrometeorological conditions in the Arctic with the use of electronic computers), 162-164.

TOPIC TAGS: computer input unit, punched card, data readout, digital computer, hydrometeorology / Ural-2 computer

ABSTRACT: To increase the effectiveness of the Ural-2 digital computer used for processing hydrometeorological data at the Arctic and Antarctic Scientific Research Institute the previously introduced 210 card/min card reader input has been modified to accept punchcard computer cards directly. Ural-2 normally accepts 40-bit words which are coded on each card row starting with column 20 and ending with column 59. The punchcard computer cards have information coded starting with column 1 and ending with column 80. To permit the punchcard

Card   1/2

ACC NR: AT6036192

computer cards to be read by the same card reading unit the card brush terminals were rewired. The modifications associated with this cir- cuit change are described. The altered card input is more suitable for entry of a large quantity of hydrometeorological data than the previous card reader. Its average speed is three times that of the earlier reader.   [WA-81, Rpt. 9]

SUB CODE: 09/   SUBM DATE: none

Card 2/2

BYCHKOV, N.P., kandidat tekhnicheskikh nauk; SHMUYLOV, N.L., redaktor; VOLCHOK, K.M., tekhnicheskiy redaktor

[Ships of the maintenance fleet] Suda tekhnicheskogo flota. Leningrad, Gos. izd-vo vodnogo transporta, 1954. 424 p.   (MLRA 9:8)
(Dredging machinery)   (Excavating machinery)
(Ships)

BYCHKOV, N.S.

Improve operating properties of measuring instruments.
Izm.tekh. no.4:56-57 Ap '60.   (MIRA 13:8)
     (Measuring instruments)

6 (7)   SOV/111-59-4-14/25

AUTHOR: Bychkov, N.T., Instructor

TITLE: Exchange of Experience in Introducing Advanced Work
             Methods at Communication Enterprises of the UkrSSR (Obmen
             opytom vnedreniya peredovykh metodov truda na predpriyati-
             yakh svyazi Ukrainskoy SSR)

PERIODICAL: Vestnik svyazi, 1959, Nr 4, pp 18 - 21 (USSR)

AUTHOR: The author reviews the results of an inspection made by
             the Central Committee of the Soviet trade union of the
             activity of the Ukrainian Ministry of Communications
             (Minister of Communications I.T. Kirichenko) and the
             Ukrainian trade union committee (chairman N. S. Gorelov).
             Four conferences were held for the exchange of experience.
             The author mentions the Nauchno-tekhnicheskoye obshchestvo
             radiotekhniki i elektrosvyazi imeni A. S. Popova (Scientif-
             ic —Technical Society of Radio Engineering and Electrical
             Communication imeni A. S. Popov). The inspection revealed
             a number of deficiencies in the dissemination of ad-
Card 1/2   vanced   experience. The Ministry did not fulfill the

SOV/111/59/4/14/25

Exchange of Experience in Introducing Advanced Work Methods at
Communication Enterprises

plan for 1958, having a deficit of more than three million
rubles. The Ministry does not control the introduction of
new methods and training. At a number of post offices, no
classes were held on these subjects. There are 2 photos.

ASSOCIATION: TsK profsoyuza rabotnikov svyazi, rabochikh avtomobil'nogo
transporta i shosseynykh dorog (Central Committee of the
Trade Union of Communication Employees and Workers of
Automobile Transport and Highways).

Card 2/2

BYCHKOV, N.T.

Let's fulfill our commitments to the 22d Congress of the CPSU. Vest. sviazi 21 no.9:6 S '61.   (MIRA 14:9)

1. Instruktor TSentral'nogo komiteta profsoyuza rabotnikov svyazi, rabochikh avtomobil'nogo transporta i shosseynykh dorog. (Telecommunication—Employees)

BYCHKOV, N.T.

The establishment of correct work norms is an important
factor in labor productivity. Vest. sviazi 23 no.6:31-32
Je '63.   (MIRA 16:8)

1. Instruktor TSentral'nogo komiteta professional'nogo
soyuza rabotnikov svyazi, rabochikh avtotransporta i
shosseynykh dorog.

BYCHKOV, N.T.

Mechanization of the processing of postal dispatches (experience
in the organization of mail transportation in the Vilnius office).
Vest. sviazi 24 no.11:20-22 N '64.   (MIRA 18:2)

BYCHKOV, N.T.

Organization of work in the Sverdlovsk long-distance telephone exchange. Vest. sviazi 25 no.7:19-21 Jl '65.   (MIRA 18:8)

1. Starshiy inspektor Gosudarstvennogo komiteta Soveta Ministrov SSSR po voprosam truda zarabotney platy.

BYCHKOV, N. V.

BYCHKOV, N. V.: "Physicochemical research on the $NaCl-BeCl_2$ and $KCl-BeCl_2$ systems". Moscow, 1955. Moscow State U imeni M. V. Lomonosov, Chair of Inorganic Chemistry. (Dissertation for the Degree of Candidate of Chemical Sciences)

SO: Knizhnaya Letopis', No. 40, 1 Oct 55

YARTSEVA, N.N.; BROMBERG, A.V.; BYCHKOV, N.V.

Indirect method for determining the ice-forming activity of reagents. Trudy GGO. no.145:30-35 '63.   (MIRA 17:2)

L 10707-65   EWT(1)/FCC   Pi-4   AFETR   GW

ACCESSION NR: AT4045156   S/2531/64/000/156/0003/0014

AUTHOR: Bychkov, N. V.; Bromberg, A. V.; Yartseva, N. N.

TITLE: Determination of the threshold temperature and kinetics of ice formation on active substances

SOURCE: Leningrad. Glavnaya geofizicheskaya observatoriya. Trudy*, no. 156, 1964. Voprosy* fiziki oblakov i aktivny*kh vozdeystviy (Problems of the physics of clouds and active particles), 3-14

TOPIC TAGS: meteorology, cloud physics, ice crystal, ice formation, cloud seeding, heterogeneous nucleation

ABSTRACT: A simple, convenient and rather objective laboratory method has been developed for determination of the threshold temperature of ice formation on nuclei. It is called the "refrigerating shaft". In this method a supercooled fog with a stable vertical temperature gradient is created in a small cylindrical shaft by means of external cooling. The temperature ranges from 0C at the entrance to -14 or -18C deep in the shaft, which contains a fine Kapron fiber whose surface is covered uniformly with microscopic particles of the substance to be investigated. If the latter is active the fiber is covered completely with small ice crystals to the level at which the threshold temperature is reached. In a

Card 1/4

L 10707-65

ACCESSION NR: AT4045156

single experiment, which requires only a short time, it is possible to determine the desired characteristics of the substance. In this method there is no settling of nuclei to the bottom of the shaft, no contamination influences the determination of the threshold temperature and it is easy to estimate the period of ice formation and observe the character of the forming crystals of ice, hoarfrost or ice crust, etc. The simplest variant of the apparatus (Fig. 1 of the Enclosure) consists of two coaxial cylinders. The inner glass cylinder is 150 mm in height and 45 mm in diameter; it serves as a working shaft for the tests. In the ring-shaped space between the cylinders is a cooling mixture. At the bottom of the shaft there is an electric heating coil covered by a layer of water for generating vapor. A movable thermocouple (5) is then introduced into the shaft for measurement of the vertical distribution of fog temperature. The treated Kapron fiber (about 18 microns in diameter) is suspended along the axis of the shaft; it is maintained taut by a copper ring attached to the end. At the same time, two control fibers are introduced into the shaft – one untreated and the other treated with silver iodide. Observations are made through the upper opening of the shaft using a magnifying lens. The results of tests of a number of substances (AgI, PbI_2, BiI_3, CuI, $CuBr$, CuS, CdS, BeO and SiO_2) are tabulated. The article also describes a microscale attachment which makes it possible to determine the kinetics of ice formation. Orig. art. has: 2 formulas, 8 figures and 2 tables.

Card 2/4

ACCESSION NR: AT4045156

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical Observatory)

SUBMITTED: 00   ENCL: 01   SUB CODE: ES

NO REF SOV: 006   OTHER: 008

Card 3/4

L 10707-65
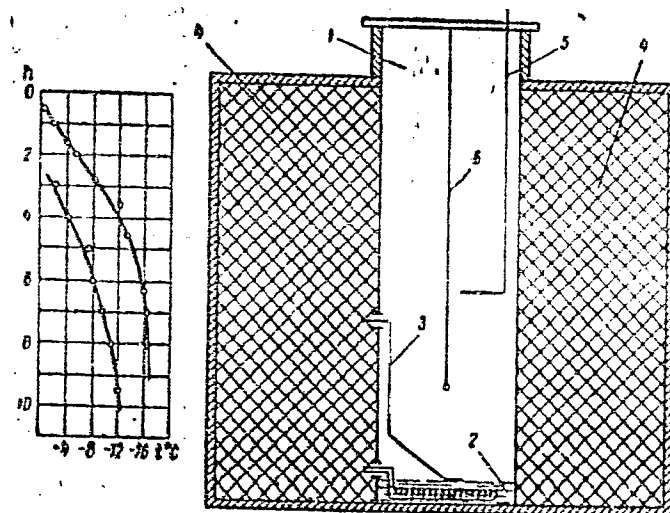ACCESSION NR: AT4045156   ENCLOSURE: 01

Fig. 1. Diagram of apparatus for determining the threshold temperature of ice
formation (refrigerating shaft with vertical temperature gradient). 1 - shaft;
2 - vapor generator; 3 - thermocouple; 4 - cooling mixture; 5 - movable thermo-
Card 4/4   couple; 6 - treated Kapron fiber.

ACCESSION NR: AT4011391   S/2531/63/000/145/0030/0035

AUTHORS: Yartseva, N. N.; Bromberg, A. V.; Bychkov, N. V.

TITLE: An indirect method for estimating the ice-forming activity of reagents

SOURCE: Leningrad. Glavn. geofiz. observatoriya. Trudy*, no. 145, 1963.
Voprosy* fiziki oblakov i aktivny*kh vozdeystviy, 30-35

TOPIC TAGS: ice forming activity, ice forming reagent, silver iodide, sodium
iodide, silver iodide solution, ice forming agent, meteorology, atmosphere ice

ABSTRACT: The article describes a method for estimating the ice-forming activity
of reagents, based on the interaction of the substance tested with a supersaturated
AgI solution in a mixture of acetone and diglycol. The authors point out that the
quest for effective substances to act upon supercooled clouds and fogs inevitably
involves the use of complex laboratory equipment for testing each new sample for
its ice-forming activity. For this reason, a more convenient, albeit indirect,
method is desirable. The authors point out that such a method has been proposed
by R. Montmory (Bull. Observ. Puyde-Dome, N. 1, 9, 1955), using a saturated solu-
tion of silver iodide in a mixture of sodium iodide, acetone and trigycol; a drop

Card.   1β

ACCESSION NR: AT4011391

of this solution is placed on a slide and contaminated with particles of the sub-
stance under study. Soon, as a result of acetone evaporation, the solution becomes
supersaturated with silver iodide. If the particles introduced from without are
active, then crystallization develops around them, which may be observed without
difficulty at small microscopic magnification factors. The authors claim, however,
that Montmory limits himself only to certain general remarks concerning foreign
particles and that for this reason his method cannot be considered, as yet, fully
reliable for selecting active ice-forming agents. The purpose, therefore, of the
present article is to determine the possibilities of this method. The authors
describe how the silver iodide solution was prepared, with special attention to the
problem of separating from the solution the solid silver iodide particles, for
otherwise they themselves may become crystallization centers during the experiment
and thus distort the picture of the behaviour of the particles introduced from
without. After a study of the crystallization process on the silver iodide parti-
cles, the authors tested nine substances (AgI, BiI_3, CuS, PbI_2, CuI, CuBr, NH_4F,
bentonite, SiO_2), as foreign bodies, while at the same time the ice-forming acti-
vity of these same preparations was determined under lab conditions by introducing

Card .2/3

ACCESSION NR: AT4011391

them into a supercooled fog. The results of these tests are discussed. In conclu-
sion, the authors discovered that substances which demonstrate a high degree of ice-
forming activity in a supercooled fog may be totally inactive as centers of crystal-
lization for silver iodide and that, therefore, the above-described method is not
wholly reliable in the selection of new substances as ice-forming active agents.
The method may, however, be used in laboratory practice as a supplement to direct
observations in a supercooled fog. Orig. art. has: 1 table and 4 figures.

ASSOCIATION: Glavnaya geofizicheskaya observatoriya, Leningrad (Main Geophysical
Observatory)

SUBMITTED: 00   DATE ACQ: 24Feb64   ENCL: 00

SUB CODE: ES   NO REF SOV: 000   OTHER: 002

Card   3/3

BYCHKOV, N.Ye.

Stand for testing abrasive wheels using a three-way pneumatic
motor. Mashinostroenie no.1:104-105 Ja-F '63.

(MIRA 16:7)

(Grinding wheels—Testing)

BYCHKOV, O.D.

Semiautomatic slide caliper to measure the diameter of forgings.
Kuz.-shtam. proizv. 2 no.5:9-14 My '60.   (MIRA 14:3)
     (Forgings—Measurement) (Calipers)

S/182/60/000/010/004/006
A161/A029

AUTHOR: Bychkov, O.D.

TITLE: Semiautomatic Dimension Signalizer for Forging Large Pieces on
             Hydraulic Forging Presses

PERIODICAL: Kuznechno-shtampovochnoye proizvodstvo, 1960, No. 10, pp. 30 - 34

TEXT:(The device was developed at TsNIITNASh and is installed either
directly on the forging dies or on a special platform beside it, and signals by
lights and bells the dimensions of the forging, so eliminating the great difficul-
tiesof the usual manual measurements on large hot forgings which can be 30 m long
or 6.5 m in diameter. It is also applicable to medium and small forgings. The
indications accuracy is 5 mm on 400 - 1,600-mm diameters. The article gives de-
tailed design and operation information. The entire dimensions range is covered
by 13 exchangeable extension pieces in 100-mm stages. Limit switches and a cali-
brated scale with 1-mm divisions serve for accurate setting. The signalizer is
shown in a diagram (Fig. 1). It has a flat rectangular 200 x 320 mm base (1) with
a vertical stay (2). The measuring rod consisting of a tube (3) and an exchange-
able extension piece (4) moves on the stay. The ball tip (5) on the rod top is

Card 1/8

S/182/60/000/010/004/006
A161/A029

Semiautomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging Presses

designed for taking up tangential forces. The spring (7) ensures constantly the measuring effort. The pushing cam (8) operates in sequence the three electric limit switches (9) connected with color signal lamps, the time relay and bells. The electrical operation principle of the limit switches is illustrated in (Fig. 2) and the entire electric system of the signalizer in (Fig. 3). The two limit switches 3ВК (3VK) and 1ВК(1VK) signal the reaching of the upper tolerance limit (deviation into plus) of the forging. The bottom limit 2ВК(2VK) switch signals the bottom of the tolerance field limit (deviation into minus) and produces an electric pulse at the bottom point of the upper die travel. Voltage is supplied into the signalizer's control system from the shop network with 220 v through the packaged 1ВП (1VP) switch and 1ПР(1PR) fuses. The lamps 1ЛС (1LS) and 1ЛС' (1LS')burn to show that the forging's height is yet above the tolerance field. When the measuring rod with the cam on it, being moved ever farther down by the die, reaches the upper tolerance field limit, the cam pushes the limit switch 1 VK that switches on the relay 1 РП (1RP), and the latter switches on by its open contact (17 - 3) the relay 2 РП (2RP) that switches over for self-feed through its normally

Card 2/8

S/182/60/000/010/004/006
A161/A029

Semiautomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging
Presses

open contact (17-5). Then the signal lamps 2 ЛС (2LS), 2 ЛС'(2LS') flare up show-
ing that the die is in the tolerance field region. The bells and lamps 3ЛС (3LS),
3ЛС' (3LS') are working until the die comes out of the tolerance field. The
electric system of the signalizer proper (limit switches) and the transportable
control board are supplied with 38 v current. The press crosshead is switched off
automatically when the bottom tolerance limit is reached. The signalizer can be
carried by hand into any place between the horizontal surfaces of dies and install-
ed by its base on the bottom die (or, preferably, on a special platform). The
free end of the handle (10, Fig. 1) is attached to a special telpher by which the
entire device can be lifted and shifted; the handle is removed for the time of
operation. Electric magnets are used for attaching the signalizer (the magnets
are not shown in Fig. 1). For using the device there must be a free space of
corresponding size, or a special platform; the total maximum nonparallelism of
the die faces must not exceed 2 mm, and pits and protrusions on the work surfaces
of dies must not exceed 0.5 - 1.0 mm. There must be no scale on the setting sur-
face. Corrections for the forging height in hot and cold state are made on a
check device with the use of preliminarily set-up table or monograms considering

Card 3/8

S/182/60/000/010/004/006
A161/A029

Semiautomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging
Presses

the expansion coefficients of the forging and of the exchangeable extension pieces,
steel grade of the forging, mean temperature, dies wear, etc. For the case of $\ldots$
flat dies and rough dimension-setting the diagram in (Fig. 2) and the following
two formulas are used: $B_H = C + Y_n + \Pi_{K.B}$; $B_B = C + Y_n + \Pi_{K.B}$, where B_H is the low-
est limit height of the forging, in mm; B_B -the highest limit height of the forg-
ing, in mm; C - the constant height from the bottom side of the signalizer base
to zero on the scale (on the small stay), in mm; Y_n - the height of the exchange-
able extension piece, in mm; n - the number of the extension piece (from 0 to 13);
$\Pi_{K.B}$ - the setting height of the left bottom limit switch on the scale from zero
upward, in mm; $\Pi_{K.B.}$ - dto for the upper right limit switch. It is particularly
important to achieve accurate automatic stopping of the mobile press parts, and
if this problem will be solved the drop forging process might be automated in most
operations, particularly in finishing. The advantages of the signalizer are ob-
vious, but they are only possible to achieve in full if a) worn dies or other
tools are replaced regularly; b) the dies used are highly wear-resistant, with
hard coatings and inserts; c) a device will be available for accurate vertical
setting of the forging axe; d) the crosshead will be stopped automatically by
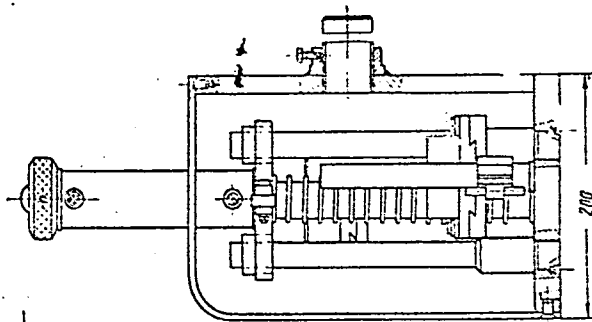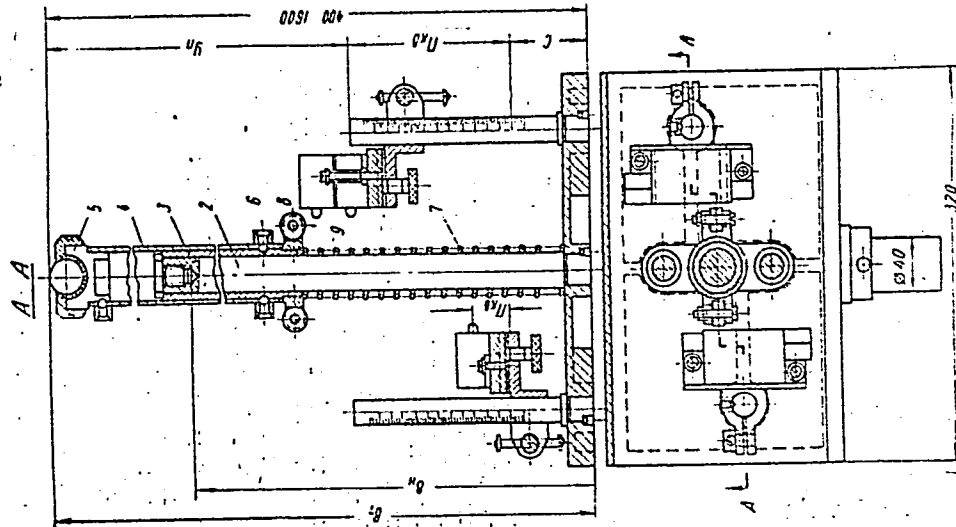
Card 4/8

S/182/60/000/010/004/005
A161/A029

... atomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging
... es

... from the measuring device;   e) finishing will be automated;   f) ingots will
... heated evenly;   g) the quantity of the scale will be reduced;   h) the metal
... lity will be improved;   i) the press will be systematically attended;   j) ad-
... tional presses will be used for finishing the forgings by pressing.   There are
... figures.

Figure 1:

Semiautomatic Signalizer

Card 5/8

S/182/60/000/010/004/006
A161/A029

Semiautomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging
Presses

Figure 1:

Semiautomatic
Signalizer

Card 6/8

s/182/60/000/010/004/006
A161/A029

Semiautomatic Dimension Signalizer for Forging Large Pieces on Hydraulic Forging Presses

Figure 2:

Height-Setting Diagram for Electric Limit Switches. A - Largest limit dimension of the forging; B - Nominal dimension; C - Lowest limit dimension; 1BK and 3BK - limit switches.
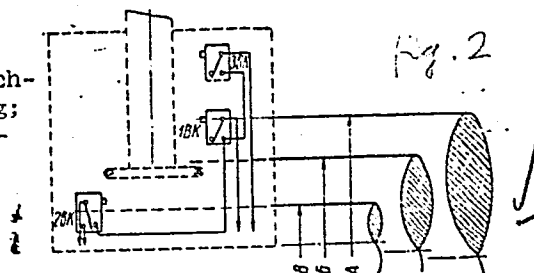
Figure 3:

- The electric circuit of the signalizer.
I - the die above the tolerance field; II - the die within the tolerance field; III - the die at the bottom tolerance limit; IV - semiautomatic operation; V - time delay (upward travel of the die); VI - the die moving up; VII - the die moving down; 1BП - packaged switch; 1TP - transformer 220/127 v; 2TP - transformer 220/36 v; 1BK - 3BK - limit switches; 1B - 4B - switches; 1PП - 10PM - intermediate relays; 1PB - time relay;
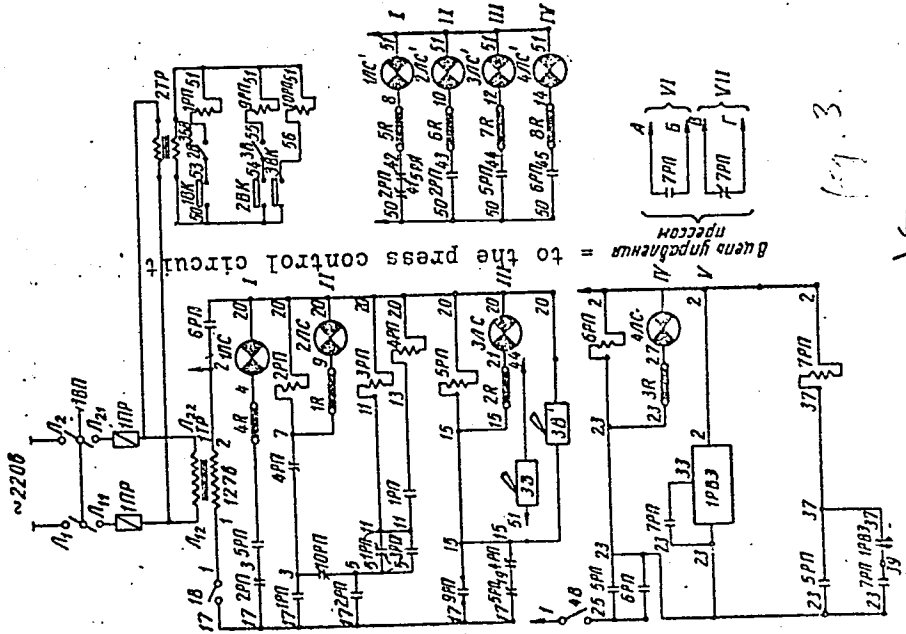
Card 7/8

S/182/60/000/010/004/006
A161/A029

Semiautomatic
Dimension Sig-
nalizer for
Forging Large,
Pieces on Hy-
draulic Forg-
ing Presses

Figure 3:

3Б and 3Б[1] -
- electric bells
1R - 8R - resis-
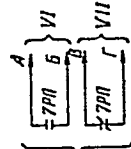tors; 1ЛС - 4ЛС
and 1ЛС[1] - 4ЛС[1]
- lamps, 1ПР-
-fuses.

Card 8/8

S/128/63/000/004/001/004
A054/A126

AUTHOR: Bychkov, O.D.

TITLE: The use of television in foundries

PERIODICAL: Liteynoye proizvodstvo, no. 4, 1963, 13 - 15

TEXT: A survey is given of various applications of TV in American, English, French, German and Soviet foundries. The TV equipment had to be adapted to the special conditions and requirements of the plants. Some measures to adjust the television apparatuses to high temperatures, to low temperatures, for workshops with poor visibility or with dusty atmosphere, etc., are described. Some examples of TV systems from the practice of Soviet foundries [Magnitogorskiy metallurgicheskiy kombinat (Magnitogorsk Metallurgical Combine), Novo-Tul'skiy metallurgicheskiy zavod (Novo-Tul'skiy Metallurgical Plant), Novolipetskiy zavod (Novolipetsk Plant), Izhorskiy zavod (Izhorsk Plant)] are given. Of the Soviet contributions TV equipment with low inertia tubes and tubes of various inertia degrees for the observation of vacuum casting, designed by the Laboratoriya Sverdlovskogo radiotekhnicheskogo tekhnikuma (Laboratory of the Sverdlovsk Radio-technical School) are described in detail. There are 4 figures.

Card 1/1

BYCHKOV, O.D.

Television methods for checking dimensions. Izm.tekh. no.5:6-9
My '63.

(MIRA 16:10)

BYCHKOV, O.D.

Use of television in the machinery industry. Mashinostroenie
no.5:119-121 S-O '63.   (MIRA 16:12)

BICHKOV, O.D. [Bychkov, O.D.]

       Television methods for controlling dimensions. Tekhnika
       Bulg 12 no.7:26-28 '63.

BYCHKOV, O.D.

Using television for observations of the welding process. Avtom.svar.
16 no.2:58-64 F '63.   (MIRA 16:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i
mashinostroyeniya.
            (Industrial television)   (Electric welding)

BYCHKOV, O. D.

Television in X-ray flaw detection of welded joints. Avtom. svar. 16 no.3:45-52 Mr '63.   (MIRA 16:4)

1. TSentral'nyy nauchno-issledovatel'skiy institut tekhnologii i mashinostroyeniya.

(Industrial television)
(Welding—Testing)

BYCHKOV, O.D.

Using television for the transmission of blueprints of part drawings. Mashinostroenie no.1:109 Ja-F '64.   (MIRA 17:7)

BYCHKOV, O.D.

Television in power engineering. Energ. i elektrotekh.
prom. no.1:68-75 Ja-Mr'64.   (MIRA 17:5)

BYCHKOV, O.D., inzh.

Continuous television and X-ray inspection in the production
of welded pipe. Svar. proizv. no.8:40-41 Ag '64.

(MIRA 17:9)

L 1719-65   EWT(d)/FSS-2

ACCESSION NR: AR5008082   S/0274/65/000/011/B025/B025
                                           621.397.9

SOURCE: Ref. zh. Radiotekhnika i elektrosvyaz'. Svodnyy tom, Abs. 1B147

AUTHOR: Bychkov, O. D.

TITLE: TV monitoring in manipulators and robots

CITED SOURCE: Tekhnika kino i televideniya, no. 5, 1964, 66-73

TOPIC TAGS: atomic manipulator, tv monitoring

TRANSLATION: The tv monitoring as applied to the manipulators at atomic centers
is evaluated among other methods of visual control. The use of tv systems in
self-propelled land-type manipulators is considered. Manipulators built into the
tv cameras and used for nuclear-reactor service are described. Also various devices
are described which are intended for submarine work at depths up to 6000 m (bottom
exploration, searching and lifting discharged rocket stages and other objects,
monitoring the operation of submarine launching pads and the submarine rocket
trajectories) where tv systems are used for homing on a target and for transmitting
information to the surface. The problem of application of stereoscopic tv for
monitoring various operations in the radioactive zone is considered, and a few
practical systems are cited.   SUB CODE: NP, EC   ENCL: 00
Card 1/1

STSLBRET, C.D.

Forging outside calipers with automatic fixing of the jaws by
means of a ratchet. Mashinostroenie, jedidel. "model. 45 Ag '65.
(MIRA 18:9)

BYCHKOV, O.G. [Bychkov, O.H.]; PISKORSKIY, G.A. [Piskors'kyi, H.A.] kand.tekhn.
nauk

Control of the thickness of the leather sole parts. Leh.prom. no.2:37-
38 Ap-Je '65.
(MIRA 18:10)

BYCHKOV, P.

Let's supply ample local materials to rural building. Sil'.bud. 11
no.6:5-6 Je '61.   (MIRA 14:7)

1. Predsedatel' soveta L'vovskogo oblastnogo mezhkolkhozstroya.
          (Lvov Province—Building materials industry)

BYCHKOV, P.

      Let's strengthen the supply center for interfarm building
organizations. Sil'.bud. 12 no.3:14-15 Mr '62.   (MIRA 15:8)

1. Predsedatel' upravleniya L'vovskoy oblastnoy mezhkolkhoznoy
stroitel'skoy organizatsii.
        (Lvov Province--Construction industry)

BYCHKOV, P. G.

Bychkov, P. G.

"Experimental and Theoretical Determination of the Bearing Capacity of
Prismatic Rods When Bent and When This is Complicated by Twisting."
Central Sci Res Inst of Industrial Structures (TsNIIS). Moscow, 1955.
(Dissertation for the Degree of Candidate in Biological Science.)

SO: Knizhnaya Letopis'
No. 27, 2 July, 1955

Distr: 4F1

2049. Brchkar. P. G. The load carrying capacity of

A theoretical and experimental

where M_b and M_t = bending and torsional

SOV/124-58-10-11503

AUTHOR: Bychkov, P. G.

TITLE: Bearing Capacity of Beams of Other Than Circular Cross Section in
            Pure and Restrained Twisting and Flexure Complicated by Restrained
            Twisting (Nesushchaya sposobnost' sterzhney nekruglykh secheniy
            pri chistom i stesnennom kruchenii i izgibe, oslozhnennom stesnen-
            nym krucheniyem)

ABSTRACT: An approximated evaluation is made of the behavior of beams of
             rectangular, triangular, and I-beam cross section in pure and
             restrained twisting, with allowance for the presence of plastic
             strains. The conclusion is drawn that twisting in a restrained beam
             cross section results in the plastic strains being propagated
             throughout the cross section later than in unrestrained cross sections.
             The results of a large number of experiments in the determination
             of the bearing capacity of steel beams under various external loads
             are adduced, including cases of application of forces in either sense.
Card 1/2   The results of the experiments are in essential agreement with the

SOV/124-58-10-11503
Bearing Capacity of Beams of Other Than Circular Cross Section (cont.)

results of calculations by the author's method.

V. V. Moskvitin

Card 2/2

DARKOV, A.V., prof., doktor tekhn.nauk; MITROPOL'SKIY, N.M., prof.,
dokt.tekhn.nauk; SHPIRO, G.S., kand.tekhn.nauk; DIDOV, B.V., prof.,
retsenzent; BYCHKOV, P.G., dotsent, retsenzent; ITSKOVICH, G.M.,
nauchnyy red.; ANOSHINA, K.I., red.izd-va; TITOVA, L.L., tekhn.
red.

[Strength of materials] Soprotivlenie materialov. Moskva, Gos.
izd-vo "Vysshaia shkola," 1959. 741 p.   (MIRA 13:4)
                       (Strength of materials)

BYCHKOV, P. M.

"Determination of Surface Flaws in Ingots for Jobbing Mills," Zavod Lab., 14, No.3, 1948.

Magnitogorsk Mining-Metallurgical Inst.

MEDZHIBOZHSKIY, M.Ya.; PRIVALOV, M.M.; GUROV, A.K.; MOKRUSHIN, V.V.;
      GRITSKOV, V.S.; Prinimali uchastiye: TSYMBAL, V.P.; BYCHKOV, P.M.;
      KURGUZKIN, V.P.; VALOV, M.Ye.; SHCHEKOLKIN, M.S.

      Making a combined use of compressed air in a high-capacity
      open-hearth furnace. Stal' 22 no.10:894-900 O'62.   (MIRA 15:10)
           (Open-hearth furnaces)   (Compressed air)

BYCHKOV, P. P.

CALL NO.: AF629674

BOOK
 Authors: BASOV, M. I., KAND. OF TECH. SCI., FEL'DSHTEYN, E. I., KAND.
          of Tech. Sci., BRAKHMAN, L. A., Eng., STISHKOV, YA. F., Eng.,
          KRYSINA, YE. V., Eng., POL'SHAKOV, V. M., Tech., BYCHKOV, P. P.,
          Eng., BARTEV, G. I.
 Full Title: CUTTING TOOLS WITH HARD-ALLOY MULTIPLE BLADE INSERTS
 Transliterated Title: Rezhushchiye instrumenty s mnogolezviynmi
                       vstavkami iz tverdogo splava
PUBLISHING DATA
 Originating Agency: None
 Publishing House: State Scientific and Technical Publishing House of
    Machine-Building Literature (Mashgiz)
 Date: 1952   No. pp.: 110   No. of copies: 8,000
 Editorial Staff
    Editor: Basov, M. I., Kand. of Tech. Sci.
TEXT DATA
 Coverage: This monograph is the collective work of authors from the
    Institute of the Organization of the Automobile Industry, the Gor'kiy
    Automobile Plant im. Molotov (ZIM) and the Moscow Automobile Plant im.
    Stalin 'ZIS). The authors describe the designs of modern cutting tools
    with hard-alloy multiple blade inserts, the results of their study and
    experience with the tools' cutting properties, and the advantages of

                              1/3

Rezhushchiye instrumenty s mnogolezviynymi   AID 482-1
vstekami iz tverdogo sllava

these tools. Detailed descriptions of each tool type are given, with
instructions for design, operation and practical use. The book con-
tains data on the effeciency of the new tool designs inline produc-
tion, and recommendations with reference to the operating conditions
of these tools, as well as many illustrations, tables and diagrams.
Of possible interest is the description of the electric spark tech-
nique on the OKB MSS single-circuit bench lathe used in the First
State Bearing Plant im. Kaganovich (pp. 87-88, whit illustertions).

Table of Contents   Pages

2/3

Rezhushchiye instrumenty s mnogolezviynymi   AID 302-1
vstavkami iz tverdoga splava   PAGES

    Ch. IV   Experience in Industrial Use of Tools with Hard-
              Alloy Multiple Blade Inserts   90-102
    Ch. V   Efficiency of Use of Tools with Hard-Alloy
              Multiple Blade Inserts   102-109
      (Efficiency of use of: I) cutters with prismatic inserts;
      2) ZIM cutters with inserted plates; 3) Face milling
      cutters with cylindrical inserts; Increased efficiency
      of tools with hollow inserts)

Purpose: The book is intended for engineers, technicians and Stakhano-
    vites in machine-building plants.

Facilities: "Orgavtoprom" (Organization of the Automobile Industry)
    Institute; ZIM (Gor'kiy Automobile Plant im. Molotov); ZIS (Moscow
    Automobile Plant im. Stalin)

No. of Russian and Slavic References: None

Available: A. I. D., Library of Congress

3/3

KUCHER, A.M., kand.tekhn.nauk; BYCHKOV, P.P.

Machining refined cast iron with instruments made of new materials.
Trudy LTITSBP no.8:182-185 '61.   (MIRA 16:9)
            (Cast iron) (Metalworking machinery)

KROPIVNITSKIY, N.N.; BYCHKOV, P.P., kand. tekhn. nauk, retsenzent;
SHUBAYEV, Yu.S., inzh., retsenzent; BLYUMBERG, V.A.,
kand. tekhn. nauk, red.; CHFAS, M.A., red.izd-va;
VARKOVETSKAYA, A.I., red.izd-va; BARDINA, A.A., tekhn. red.

[General course in machine-shop practice] Obshchii kurs
slesarnogo dela. Moskva, Mashgiz, 1963. 407 p.
(MIRA 17:2)

KROPIVNITSKIY, N.N.; KUCHER, A.M.; kand. tekhn. nauk;
PUGACHEVA, R.V.; SHORNIKOV, P.N.; BYCHKOV, P.P., kand.
tekhn. nauk, retsenzent; MALYSHEV, N.A., inzh., retsenzent

[Technology of metals] Tekhnologiia metallov. [By] N.N.
Kropivnitskii i dr. Izd.2., perer. i dop. Moskva, Izd-vo
"Mashinostroenie," 1964. 502 p.   (MIRA 17:8)

REVIS, I.A.; BYCHKOV, P.P.

Effect of the degree of the forging reduction on the properties
of high-speed steel. Trudy LTITSBP no.14:15-21 '64.   (MIRA 18:5)

SITNIN, V.K., red.; BARNGOL'TS, S.B., red.; BYCHKOV, P.S., red.;
        MARGULIS, A.Sh., red.; METT, G.Ya., dots.,red.; KAZANTSEV,A.I.,
        red.; SYCHEV, N.G., red.

        [Organization and methods for the economic analysis of the work
        of enterprises; transactions] Organizatsiia i metody ekonomiche-
        skogo analiza raboty predpriiatii; trudy. Moskva, Gosfin-
        izdat, 1963. 663 p.   (MIRA 17:4)

        1. Vsesoyuznoye nauchno-tekhnicheskoye soveshchaniye po or-
        ganizatsii i metodike ekonomicheskogo analiza raboty pro-
        myshlennykh predpriyatiy. 1st, Moscow, 1963. 2. Predsedatel'
        Komiteta ekonomiki i organizatsii proizvodstva tsentral'nogo
        pravleniya Nauchno-tekhnicheskogo obshchestva mashino-
        stroitel'noy promyshlennosti (for Mett).

ZVEREV, M.P.; BYCHKOV, R.A.; KOSTINA, T.F.; KLIMENKOV, V.S.

Modification of the properties of polypropylene fibers. Khim.
volok. no.3:15-19 '64.   (MIRA 17:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusstvennogo
volokna.

MICHURINA, G.A.; ZVEREV, M.P.; BYCHKOV, R.A.; KLIMENKOV, V.S.

Production of polypropylene fibers from a polymer solution.
Khim. volok. no.4:18-20 '63.   (MIRA 16:8)

1. Vsesoyuznyy nauchno-issledovatel'skiy institut iskusst-
vennogo volokna.

L 17481-63   EWP(j)/EWT(m)/BDS   AFFTC/ASD   Pc-4   RM

AUTHORS: Michurina, G. A.; Zverev, M. P.; Bychkov, R. A.; Klimenkov, V. S.   60

TITLE: Formulation of polypropylene fibers from a polymer solution

SOURCE: Khimicheskiye volokna, no. 4, 1963, 18-20

TOPIC TAGS: polypropylene, polymer

ABSTRACT: Authors studied several polypropylene properties in solution, their
dependence upon the structure of the compound and the temperatures which are
within the limits of fiber formulation. The dependence of viscosity in the
polymer-solvent system upon the temperature and the intensity of the shift has
also been studied. High-boiling hydrocarbons with boiling points between 200 and
250C were used as solvents. Various polymeric structures were separated by the
method described by I. Natta et al (J. Am. Chem. Soc., 77, 1955, 1708). It was
found that the polypropylene solutions or atactic and stereoblock-copolymer
structures become fluid at various shift intensities and temperatures. The vis-
cosity of the system changes very little between 20 and 80C. However, it in-
creases sharply with further increase in temperature, reaching a maximum at 120C.
The crystalline structure of the polymer is destroyed between 150 and 160C. The

Card   1/2

L 17481-63
ACCESSION NR: AP3004759

results show that formulation of fibers from solutions of isotactic polymers can be accomplished only at temperatures close to the melting point of the polymer. The presence of solvent in the polypropylene fibers at the moment of extrusion results in the production of fibers with better physical and mechanical properties. Orig. art. has: 4 figures.

ASSOCIATION: VNIIV (All-Union scientific research institute for synthetic fibers)

SUBMITTED: 23Jul62   DATE ACQ: 20Aug63   ENCL: 00

SUB CODE: CH   NO REF SOV: 004   OTHER: 003

Card 2/2

ACCESSION NR: AP4039348   S/0183/64/000/003/0015/0019

AUTHOR: Zverev, M. P.; Bychkov, R. A.; Kostina, T. F.; Klimenkov, V. S.

TITLE: Modification of polypropylene fiber properties.

SOURCE: Khimicheskiye volokna, no. 3, 1964, 15-19

TOPIC TAGS: polypropylene fiber, polypropylene polystyrene fiber, polypropylene polystyrene compatibility, IR spectra, deformation, mechanical strength, polymer amorphisation, structure breakdown, relative elongation, isotactic polypropylene, isotactic polystyrene, steric hindrance, structure mobility

ABSTRACT: The compatibility and properties of fibers made of mixtures of polypropylene and polystyrene were investigated. The densities of the polymer mixtures and the contraction were determined. IR spectra were critically examined and thermomechanical properties (deformation, strength) were determined. Increasing the amount of polystyrene in polypropylene caused partial amorphization of the polymers. The two polymers are not microcompatible, as shown by IR data and the presence of 2 melting regions in mixtures containing over 12 weight% polystyrene. The positive value of the amount of contraction is not a criteria for determining

Card 1/3

ACCESSION NR: AP4039348

microcompatibility. It is proposed that the geometric dimensions of the macro-molecules of the initial polymers and the different dimensions of the secondary structures affect the amount of specific volume contraction. The formation of defects in the secondary structure of polystyrene is greater than in polypropylene; a small amount of the latter in polystyrene causes contraction of the polystyrene. Addition of small amounts of polystyrene caused the polypropylene structure to break down. Increasing the amount of polystyrene in polypropylene reduced the relative elongation and the mechanical strength of the latter due to the micro-heterogeneity of the system and the increased hardness of the polypropylene struc- ture. Mixtures of isotactic polypropylene and polystyrene have satisfactory physical-mechanical properties if the amount of polystyrene does not exceed 12%. The energy of activation of creep increased with increase in polystyrene content; this was explained by steric hindrances created by the polystyrene which impede the mobility of the polypropylene structure. "In conclusion we consider it our obligation to thank K. S. Minsker for supplying us the isotactic polystyrene." Orig. art. has: 7 figures and 2 tables.

ASSOCIATION: None

Card 2/3

ACCESSION NR: AP4039348

SUBMITTED: 11Apr63   ENCL: 00

SUB CODE: OC   NO REF SOV: 008   OTHER: 003

Card   3/3

BYCHKOV, S., inzhener.

Training dispatchers. Avt. transp. 34 no.8:24 Ag '56.

(MLRA 9:10)

(Technical education)

1. BYCHKOV, S. A.

2. USSR (600)

4. Excavation

7. F. L. Kovalev's method in excavation work. Biul. stroi. tekh. 10, No. 7, 1953.

9. <u>Monthly</u> <u>List</u> <u>of</u> <u>Russian</u> <u>Accessions</u>, Library of Congress, ___April___ 1953, Uncl.

BYCHKOV, S·I·

BYTSCHKOW, S. I.

Wireless Engineer
July, 1954
Stations and Communication Systems

BYCHKOV, S.I.; DROBOV, S.A., redaktor; VLADIMIROV, V.T., podpolkovnik,
redaktor; SOKOLOVA, G.F., tekhnicheskiy redaktor.

[Magnetron transmitters] Magnetronnye peredatchiki. Pod red.
S.A.Drobova. Moskva, Voen.izd-vo Ministerstva oborony SSSR, 1955.
215 p.   (MLRA 8:11)
     (Radio--Transmitters and transmission)

Бусикоv, Sееееy Ivanoviсн

Bychkov, Sergey Ivanovich

Call Nr: AF 1162769

Magnetron (The Magnetron) Moscow, Voyennoye izd-vo Min-va obor. SSSR, 1957, 51 p. (Radiolokatsionnaya tekhnika)

Ed.:   Vladimirov, V.T., Lt Col.; Tech. Ed.: Mezheritskaya, N.P.;
            Corrector: Tsvetkova, L.K.

PURPOSE: The booklet, like the other publications in the series
            "Radiolokatsionnaya tekhnika" (Radar Technique), is
            intended for officers concerned with the operation of
            radio engineering devices. It can also be useful to
            readers at large who wish to acquaint themselves with
            the operation of the separate units and elements of
            radar.

Card 1/4

Magnetron (Cont.)

COVERAGE: The booklet describes in a popular form the principle
of multicavity magnetron operations, their construction
and electrical characteristics. It also gives an account
of the principles for controlling magnetron oscillations
and of the measurement of the main electrical indexes.
Theoretical and experimental investigations made by the
Soviet scientists Grinberg, G.A.; Lukoshkov, V.S.;
Grekhova, M.T.; Kalinin, V.I.; Brenev, I.V. and others,
contributed to the development of magnetrons. In the
period 1924 to 1927, Slutskin, A.A., and Shteynberg, D.S.,
were among the first to experiment with UHF magnetrons.
Between 1934 and 1935, Zusmanovskiy, S.A., supervised the
development of a double-slot 1-kw magnetron operating on
a 15-cm wave. Alekseyev, N.F., and Malyarov, D.Ye., were
the first to develop multicavity magnetrons in 1936-1937.
Further theoretical work in this field was done by
Neyman, M.S., and Kisun'ko, G.V. There are no references.
A list of the other publications in the series is given
at the end of the brochure.

Card 2/4

Magnetron (Cont.)

Call Nr: AF 1162769

TABLE OF CONTENTS:

Card 3/4

Magnetron (Cont.)

Call Nr: AF 1162769

    Cathode and magnetic system of the magnetron   35

Electrical Characteristics of the Magnetron and Control of
Oscillations
                                                             38-50

    Electrical characteristics of the magnetron   38
. Control of magnetron oscillations   43
    Control of the operation of a magnetron transmitter   47

AVAILABLE: Library of Congress

Card 4/4

BYCHKOV, S. I.

S. I. Bychkov, "Transients in the pulse operation of a magnetron using an unmatched feeder." Scientific Session Devoted to "Radio Day", May 1958, Trudrezervizdat, Moscow, 9 Sep 58.

The transient in a magnetron specified by the reaction with the side load, is investigated by integration of the nonlinear differential equations with a small parameter and retarded argument. The general character of the transient behavior is established, the influence of the length of the transmission line, the degree of load mismatch, the magnitude of the generator coupling to the line and the phase of the first reflection is explained.

A distribution of the roots of the characteristic equation has been obtained for the phase of the first reflection, which permits the general character of the frequency build-up in the transient region to be estimated.

The influence of the steepness of the front of the pulse envelope and of the electron frequency shift on the initial stages of the transient and on the position of the zone of the instable region is analyzed.

The fundamental theoretical conclusions are confirmed by experimental results.

SOV-109-3-4-10/28

AUTHOR: Bychkov, S. I.

TITLE: Approximate Method of Calculation of the Induced Current in Resonator-Type Magnetrons (Priblizhennyy metod rascheta navedennogo toka v rezonatornykh magnetronakh)

PERIODICAL: Radiotekhnika i Elektronika, 1958, Vol.3, Nr 4, pp 530-536 (USSR)

ABSTRACT: The magnetron considered is a multi-cavity device shown in Fig.1. In the analysis of the system it is assumed that the space charge is in the form of "spokes" (see Fig.1), the electrons move in the plane perpendicular to the axis of the system and that the space charge has no effect on the distribution of the high frequency field. The current induced by the charge of one "spoke" is given by the following equation:

$$i_H = h \int_{r_c}^{r_a} \int_{\varphi_0 - \sigma}^{\varphi_0 + \sigma} r v(r, \varphi) E_v(r, \varphi) \rho(r, \varphi) dr d\varphi \quad , \qquad (1)$$

where $v(r, \varphi)$ is the velocity of the charge at a point (r, φ), $E_v(r, \varphi)$ is the static field component, 2σ is

Card 1/4

SOV-109-3-4-10/28

Approximate Method of Calculation of the Induced Current in
Resonator-Type Magnetrons

the angular width of a spoke, $\rho(r, \varphi)$ is the space charge
density, h is the length of the anode, φ_0 is the angle
determining the position of a spoke with respect to the
centre of a resonator input, r_a is the radius of the anode,
r_c is the radius of the boundary of the cylindrical region
of the space charge. The radius r_c can be regarded as
being equal to the radius of the synchronous layer as given
by Eq.(2) in which f_0 is the generated frequency, ω_u =
= eB/m , B is the magnetic field, n is the oscillation
mode number and r_K is the radius of the cathode. Eq.(1)
can be transformed into Eq.(3) and its final solution for
the fundamental of the induced current is given by Eq.(6),
where $F_1(r)$ is given by Eq.(7). N in Eq.(7) denotes the
number of the resonators in the magnetron. The solution of

Card 2/4

Approximate Method of Calculation of the Induced Current in Resonator-Type Magnetrons

> Eq.(6) is in the form of Eq.(9). If it is assumed that the space charge is given by Eq.(10), the final solution for the induced current is in the form of Eq.(11) where the function ϕ is defined by Eq.(12). In Eq.(10) U_o is the anode
>
> operating voltage, U_{onop} is the threshold voltage and ρ_o
> is the space charge density at the threshold voltage. Eq.(11) was used to evaluate the induced current in a number of practical magnetrons; the currents were also measured experimentally (see Table 1). It was found that the calculated currents were considerably larger than the measured ones. It was assumed, therefore, that the space charge density should be expressed by Eq.(18) in which $E_{\varphi m}$ is the tangential
>
> field component under the resonator input at the instant of its maximum amplitude and θ_1 is the angle of the displace-
>
> ment of a spoke with regard to the centre of a resonator in-put. Integration of Eq.(6) for the space charge expressed by Eq.(18) and $E_{\varphi m}$ given by Eq.(19), leads to the final

Card 3/4 formula:

Approximate Method of Calculation of the Induced Current in Resonator-
Type Magnetrons

SOV-109-3-4-10/28

$$I_{H1} = \frac{2\pi f_o B(r_a^2 - r_c^2)I_o}{NU_1 \cos \frac{\theta_1 N}{2}} \,, \qquad (20)$$

where U_1 is the AC voltage amplitude at the resonator.
Eq.(20) was employed in determining the induced currents in
4 practical magnetrons and it was found that the calculated
results were only slightly different from the measured values.
There are 2 figures, 2 tables and 5 references, of which 2 are
English and 3 Soviet.

SUBMITTED: April 29, 1957

1. Magnetrons--Electrical properties   2. Magnetrons--Mathematical
   analysis   3. Approximate computation--Applications

Card 4/4

S/194/62/000/006/141/232
D201/D308

AUTHOR: · Bychkov, S.I.

TITLE: Phase stability of synchronized amplitude-modulated
             systems

PERICDICAL: Referativnyy zhurnal. Avtomatika i radioelektronika,
             no. 6, 1962, 3, abstract 6 Zh 21 (Sb. tr. XIII
             Leningr. nauchno-tekhn. konferentsii, posvyashch.
             dnyu radio. L., 1959, 152-163)

TEXT: A theoretical analysis of the problem of occurrence of un-
wanted phase modulation in a self-oscillating system and in parti-
cular in an amplitude modulated magnetron which at the same time is
subjected to a synchronizing signal. Assuming that the amplitude
of the synchronizing signal is small, the effect of various system
parameters on the phase variation in the process of amplitude modu-
lation is analyzed and means of increasing the phase stability con-
sidered. In the same approximation, the magnitude of unwanted phase
modulation is estimated for the case when the magnetron is synchro-
nized from the side of the load. It follows from the obtained rela-
Card 1/2

Phase stability of synchronized ...   S/194/62/000/006/141/232
                                        D201/D308

tionships that in the case of sinusoidal variation of the d.c. com-
ponent of the magnetron current, the character of the phase change
is not generally sinusoidal. The maximum value of the phase change
increases with decreasing amplitude of synchronizing signal and the
decrease of coupling between the magnetron and load. The magnitude
and character of the phase variation depend also on the depth modu-
lation and on the magnitude of current corresponding to zero deter-
mining of the frequency of the autonomous magnetron with respect to
the frequency of the external signal. It is pointed out that the
phase modulation can be substantially decreased by means of simul-
taneous amplitude modulation of the synchronizing generator. [Ab-
stractor's note: Complete translation.]

Card 2/2

-9-(2, 3) 9,421 0

66317
SOV/162-59-1-11/27

AUTHOR: Bychkov, S.I.

TITLE: The Influence of Magnetic Field Inhomogeneities on the
             Dynamic Characteristics of a Magnetron

PERIODICAL: Nauchnyye doklady vysshey shkoly, Radiotekhnika i
             elektronika, 1959, Nr 1, pp 91-97

ABSTRACT: The author presents relations for estimating the re-
             duction of output and electronic efficiency caused by
             radial and axial magnetic field inhomogeneities in the
             interaction space of a magnetron. He uses a method
             which he previously developed for analyzing electronic
             processes in a magnetron /Ref 2, 3/ to establish an
             approximated dependence of the output and the electro-
             nic efficiency on the character and degree of magne-
             tic field inhomogeneities. Thus far, the influence of
             magnetic field inhomogeneities on the functioning of
             a magnetron has not yet been sufficiently investigat-
             ed. No adequate proof has been given that a 5% magne-
Card 1/3   tic field inhomogeneity is permissible. The approxi-

66317
SOV/162-59-1-11/27

The Influence of Magnetic Field Inhomogeneities on the Dynamic
Characteristics of a Magnetron

mated estimation of electronic efficiency changes may
be made using the graphs presented in /Ref 3/. The
author shows that the radial velocity of electron mo-
tion is higher in those regions where the magnetic
induction has its lowest value. Fig 3 shows that the
axial inhomogeneity of the magnetic field leads to
an unequal cathode load. The cathode load will rise
essentially in those regions which correspond to a mi-
nimum of the function B(z). Measurements performed on
magnetrons show that the relations presented by the
author may be used for approximated estimations of
changes of the power and electronic efficiency. The
magnetic field inhomogeneity may attain values excee-
ding considerably data published in literature /Ref
1/ without disturbing the excitation conditions for
the basic oscillations. For example, a number of
magnetrons works reliably with 15-20% magnetic field
Card 2/3   inhomogeneities. Experimental observations confirm

66317

SOV/162-59-1-11/27

The Influence of Magnetic Field Inhomogeneities on the Dynamic Characteristics of a Magnetron

also the rapid wear of the active cathode coating in regions with a reduced magnetic induction, ie. in regions where the current $i_0(z)$ has maximum values. There are three graphs and 3 Soviet references.

ASSOCIATION: Leningradskaya Krasnoznamennaya voyenno-vozdushnaya inzhenernaya akademiya imeni A.F. Mozhayskogo (Leningrad Red Banner Academy of Military Aviation Engineering imeni A.F. Mozhayskiy)

SUBMITTED: July 9, 1958

Card 3/3

AUTHOR: S.I. Bychkov   SOV/109- - -4-3-17/38

TITLE: Calculation of the Operating Characteristics of Multi-
            Cavity Magnetrons (K raschetu rabochikh kharakteristik
            mnogorezonatornykh magnetronov)

PERIODICAL: Radiotekhnika i Elektronika, 1959, Vol 4, Nr 3,
            pp 468-474 (USSR)

ABSTRACT: The anode potential in a multi-cavity magnetron can be
            expressed (Ref 1) by:

$$U_0 = \frac{1}{2}\omega_c B (r_a^2 - r_K^2) - \frac{1}{2}\frac{m}{e}\left[v_\tau^2 (r_a) - v_\rho^2 (r_a)\right], \quad (1)$$

            where ω_c is the angular velocity of the electrons, B
            is the magnetic induction, r_a is the radius of the
            anode, r_K is the radius of the cathode, m and e are
            the mass and the charge of an electron, while v_τ and
            v_ρ are the tangential and the radial components of the
            electron velocities at the anode.   Eq (1) is valid under
            the assumption that the electrons leave the cathode with
            a zero velocity and that between the cavity and the
Card 1/4   anode they move with a constant angular velocity. From
            Eq (1) it follows that the anode potential of the system

Calculation of the Operating Characteristics of Multi-Cavity
Magnetrons   SOV/109-- - -4-3-17/38

can be determined if the kinetic energy of the tangential
and radial motion of the electrons is evaluated. The
kinetic energy of an electron depends on the angle α
and the phase p, corresponding to the instant of an
electron reaching the anode (see Fig 1). It is assumed
that the capture by the anode of electrons with variable
phases is equally probable, as expressed by Eqs (2) and
(3), where $\overline{v_x^2}$, $\overline{v_y^2}$ and $\overline{v_x v_y}$

are the averages of the squares of the velocities v_x
and v_y and of the product $v_x v_y$. These averages are
expressed by Eqs (4), (5) and (6) where v_n is the
velocity of the centre of the circle along the axis ox
(see Fig 2). The averages can be approximately
expressed by Eqs (9), (10) and (11); these are valid
for the electrons having cycloidal trajectories in a
plane magnetron. In actual magnetrons, the averages can
be approximately represented by Eqs (12), (13) and (14);
Card 2/4   the variations of these functions are plotted in Fig 3.
By combining Eqs (1), (12), (13) and (14), the

Calculation of the Operating Characteristics of Multi-Cavity SOV/109- - -4-3-17/38
Magnetrons

expression for the anode voltage is:

$$U_o = \frac{1}{2} \omega_c B(r_a^2 - r_K^2) - \frac{1}{2} \frac{m}{e} k_1^2 v_c^2 F_o (\alpha), \qquad (15)$$

where F_o is expressed by Eq (16). F_o is plotted in
Fig 4. When the angle α lies between 5° and 60°, the
function F_o can be approximated by Eq (20). The
dynamic impedance of the magnetron is defined by Eq (21).
The electron efficiency of the magnetron is defined by:

$$\eta_e = 1 - \frac{\overline{W}_r + \overline{W}_r}{eU_o} \qquad (23)$$

This can also be written as Eq (24). Eqs (15) and (24)
were employed to evaluate the anode voltage and the
efficiency of a number of magnetrons. The results are
plotted in Fig 6 together with experimental data; the
solid curves correspond to the calculated results, while
Card 3/4   the dashed curves represent the experimental results.
The calculated and experimental data are also compared

Calculation of the Operating Characteristics of Multi-Cavity Magnetrons

SOV/109- - -4-3-17/38

in the table on page 474.
There are 6 figures, 1 table and 5 references, 4 of which are Soviet and 1 German. One of the Soviet references is translated from English.

Card 4/4

SUBMITTED: October 14, 1957

RYCHKOV, S.I., doktor tekhn. nauk; VURENIN, N.I.; SAFAROV, R.T.;
SUKHANOV, Yu.I., red.; SMUROV, B.V., tekhn. red.

[Frequency stabilization of UHF generators] Stabilizatsiia cha-
stoty generatorov SVCh. Moskva, Izd-vo "Sovetskoe radio,"
1962. 375 p.
(Oscillators, Electric) (Microwaves)   (MIRA 15:2)

ACCESSION NR: AP4040462   S/0108/64/019/006/0067/0074

AUTHOR: By*chkov, S. I. (Active member)

TITLE: Engineering design of fundamental parameters and characteristics of magnetrons and platinotrons

SOURCE: Radiotekhnika, v. 19, no. 6, 1964, 67-74

TOPIC TAGS: magnetron, platinotron, magnetron design, platinotron design

ABSTRACT: The known methods of designing magnetrons do not permit evaluating the effect of selected parameters on the device's dynamic characteristics; the latter, however, are important for off-design operating conditions, synchronization, and phasing. In the present article, a method of engineering design of geometrical and electric parameters and dynamic characteristics is proposed; the method is based on an approximate theory of electron phenomena in magnetron-type devices. Formulas and procedures for calculating the number of resonators,

Card 1/2

ACCESSION NR: AP4040462

interaction-space size, efficiency, current-voltage characteristics, and electron frequency shift are indicated. The design method is also extended over to the platinotron. The formula describing the power transmitted by an electron beam to the load, in a platinotron, is verified against some experimental data (US published) obtained from a stabilitron. Orig. art. has: 3 figures, 26 formulas, and 1 table.

ASSOCIATION: Nauchno-tekhnicheskoye obshchestvo radiotekhniki i elektrosvyazi (Scientific and Technical Society of Radio Engineering and Electrocommunication)

SUBMITTED: 04Sep62   DATE ACQ: 06Jul64   ENCL: 00

SUB CODE: EC   NO REF SOV: 003   OTHER: 001

Card 2/2