CHERNYAVSKIY, A.A., starshiy geolog

Eliminate the causes of deformations in buildings.
Transp. stroi. 11 no.7:60 Jl '61. (MIRA 14:7)

1. Filial Dorproyekta Severo-Kavkazskoy dorogi.
(Foundations)

CHERNYAVSKIY, A.A., kand.tekhn.nauk; LAMIN, A.B.

Increasing the output of a pilgrim mill by reducing the time of feeding the mandrel into the tube. Met.i gornorud. prom. no.6:35-37 N-D '63. (MIRA 28:2)

CHERNYAVSKIY, A.A., kand. med. nauk; SVESHNIKOV, P.A.

Six peptic ulcers of the small intestine following a conservative resection of the stomach in peptic ulcer. Khirurgiia 39 no.6: 133-134 Je '63. (MIRA 17:5)

1. Iz fakul'tetskoy khirurgicheskoy kliniki (zav. - zasluzhennyy deyatel' nauki prof. Ye.L. Berezov [deceased]) Gor'kovskogo meditsinskogo instituta.

KUKOSH, V.I.; CHERNYAVSKIY, A.A.; MIKHAYLOVA, T.N.

Results of repeated surgery in gastric cancer. Vop onk. 10 no.8:94-99 '64. (MIRA 18:3)

1. Iz kafedry fakul'tetskoy khirurgii (zav. - prof. V.I.Kukosh) Gor'kovskogo meditsinskogo instituta imeni Kirova (rektor - dotsent I.F.Matyushin). Adres avtorov: Gor'kiy, 6, ul. Kovalikhinskaya, d.4, kv.6.

S/137/61/000/006/046/092
A006/A101

AUTHORS: Chekmarev, A.P., Rudoy, V.S., Chernyavskiy, A.A.

TITLE: Forward flow of metal during rolling on a pilger mill

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no. 6, 1961, 36, abstract 6D290 ("Tr. Ukr. n.-i. trubn. in-ta", 1959, no. 1, 96 - 105)

TEXT: Forward flow during the rolling of 273 mm diameter pipes on a 6 -12" pilger mill was determined from imprints left on the pipe and the pilger mill head by apertures drilled in the rolls. The apertures of 10 mm diameter and 5 - 7 mm depth were drilled on every 15° (starting from the groove rims) over the width, and on every 10° (from the beginning of the top) over the length of the roll groove. It was established that the forward flow along the top of rolls during rolling on a pilger mill was considerably higher than in longitudinal rolling of pipes or compact sections in round grooves. The dependences of the coefficient of forward flow on the turning angle of the rolls show that the forward flow attains its highest value within 10° - 20° from the beginning of the top, and then decreases. At the beginning of the top near the rims lagging was observed. The width of this zone near the roll rims extends up to 45° over the

Card 1/2

Forward flow of metal during rolling on a pilger mill

S/137/61/000/006/046/092
A006/A101

groove width in the section of the metal outlet from the rolls. The coefficient of forward flow first increases on the length of the polishing section (along the initial 10° - 30°) and then decreases. To determine the coefficient of forward flow with sufficient practical accuracy, the corresponding Yemel'yanov formula may be employed.

Yu. Manegin

[Abstracter's note: Complete translation]

Card 2/2

24572

S/137/61/000/005/025/060
A006/A106

11300

AUTHORS: Shevchenko, A.A., Rudoy, V.S., Chernyavskiy, A.A.

TITLE: Production of pipes of variable section on a pilger mill

PERIODICAL: Referativnyy zhurnal. Metallurgiya, no.5, 1961, 29, abstract 5D267 ("Byul. nauchno-tekhn. inform. Ukr. n.-i. trubn. in-t", 1959, no. 6 - 7, 21 - 28)

TEXT: Pipes of variable section were rolled from sleeves produced on a piercing mill and from a pipe blank prerolled on a pilger mill on special shaped mandrels. It is concluded that pilger mills can be used to produce large diameter pipes with walls thickened at the ends and shaped over the length; the ratio of the wall thickness in the thickened portion to the basic section is up to 2 - 3; the length of the thickened portion is limited by the weight of the ingot. The mechanical properties of the pipe remain approximately constant over the whole length of the pipe. This is connected with the absence of curvature and bending of the metal threads. Metal folds, formed during rolling on the transition spots

Card 1/2

24572 S/137/61/000/005/025/060
A006/A106

Production of pipes of variable section on a pilger mill

of the thickened wall to the basic pipe section do not reduce the mechanical properties of the pipe and may be easily eliminated by internal boring.

Yu. M.

[Abstracter's note: Complete translation]

Card 2/2

PLYATSKOVSKIY, O.A., kand.tekhn.nauk; CHERNYAVSKIY, A.A., inzh.

Grooving Pilgrim Mill rolls in a way ensuring a maximum output of the machinery. Izv.vys.ucheb.zav.; chern.met. 2 no.10:49-56 O' '59. (MIRA 13:3)

1. Ukrainskiy nauchno-issledovatel'skiy trubnyy institut i zavod imeni K.Libknekhta. Rekomendovano laboratoriyey tekhnologii goryachey obrabotki trub Ukrainskogo nauchno-issledovatel'skogo trubnogo instituta.
(Rolls (Iron mills))

ChERNYAVSKIY, A.A. Cand Tech Sci -- (diss) "Kinematics and Dynamics of the Pilger Mill Process For Rolling Thin-Walled Tubes," Dnepropetrovsk, 1960, 24 pp, 150 copies (Dnepropetrovsk Metallurgical Institute im I. V. Stalin) (KL, 47/60, 104)

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S/032/60/026/04/16/046
B010/B006

AUTHORS: Lyuchkov, A.D., Lamin, A.B., Polyakova, B.Z., Chernyavskiy, A.A.

TITLE: Detection of Defects in Welding Seams of Small-diameter Tubes

PERIODICAL: Zavodskaya laboratoriya, 1960, Vol. 26, No. 4, pp. 454-457

TEXT: The sensitivity of ultrasonic control methods for welding seams of small-diameter tubes (51 mm x 2.5 mm) was investigated. A UZD-7N ultrasonic crack detector (Fig. 1, photograph) was used. The pulse-echo method and an acoustic frequency of 2.5 Mcps were applied in the tests. The sound waves were sent in such a way (Fig. 2, diagram) into the tube, as to make them strike the welding seam at an angle of 90°. The maximum heights of the echo pulses thus come to lie in the middle of the scope. Tube specimens having visible defects in the welding seams as well as specimens which had already been subjected to hydraulic tests were investigated. To evaluate the defects by means of the oscillograms obtained, the tubes were cut in pieces after ultrasonic control, and then investigated microscopically. It was found that ultrasonic control is insensitive to defects on the specimen surface, but

Card 1/2

Detection of Defects in Welding Seams of Small-diameter Tubes

S/032/60/026/04/16/046
B010/B006

that it is very sensitive to deep-going surface defects. The quality of the welding seam can be estimated from the size of the echo reflected from the seam and from the size of the final echo. The type and the size of the defect however, can only be estimated in a first approximation by evaluating both echos. Therefore, a special apparatus must be designed in order to render possible the selection of electric pulses (at the amplifier) with respect to time. There are 4 figures and 1 Soviet reference.

ASSOCIATION: Dnepropetrovskiy truboprokatnyy zavod (Dnepropetrovsk Tube-rolling Mill)

Card 2/2

S/137/62/000/004/071/201
A052/A101

AUTHORS: Chekmarev, A. P., Rudoy, V. S., Chernyavskiy, A. A.

TITLE: Deformation seat parameters at hot pilger pipe rolling

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 4, 1962, 37, abstract 4D212 (V sb. "Proiz-vo trub". Khar'kov, Metallurgizdat, no. 5, 1961, 43-58)

TEXT: The available investigations of the deformation seat geometry are not sufficient for calculating optimum technological and energy conditions of the pilger mill operation. To determine the basic deformation seat parameters (angle of grip, entering height and length of deformation seat), an analytical and a graphoanalytical method are suggested. For both methods some assumptions are made. To check the suggested methods tests were carried out on a laboratory pilger mill; the results of the tests are given. The results of the investigations have shown that the angles of grip determined by both methods differ from the true values by 8 - 13%, and the contact areas by 5 - 8%.

A. Leont'yev

[Abstracter's note: Complete translation]

Card 1/1

CHERNYAVSKIY, A.A.; UMERENKOV, V.N.

Size determination in the cutting of ingots. Kuz.-shtam. proizv. 4 no.5:23-27 My '62. (MIRA 16:5)
(Steel ingots)

CHERNYAVSKIY, A.A., kand.tekhn.nauk; UMERENKOV, V.N., inzh.

Determining the polishing ratio in the hot pilger mill rolling of tubes. Stal' 23 no.12:1105-1107 D '63. (MIRA 17:2)

1. Truboprokatnyy zavod im. Karla Libknekhta.

SHEVAKIN, Yu. F.; CHERNYAVSKIY, A. A.; LAMIN, A. B.

Engineering method of calculating changes in wall thickness during tube drawing without mandrels. Izv.vys.ucheb.zav.; chern.met. 7 no. 5:104-109 '64. (MIRA 17:5)

1. Moskovskiy institut stali i splavov.

VATKIN, Ya.L., doktor tekhn. nauk; CHERNYAVSKIY, A.A., kand. tekhn. nauk; KAZAKOV, V.E., inzh.; GLIKIN, M.P., inzh.; PERCHANIK, V.V., inzh.; KHANIN, M.I., inzh.; BIBA, V.I., inzh.

Reducing internal laps in tube rolling on Pilgrim mills. Stal' 24 no.1:63-67 Ja '64. (MIRA 17:2)

1. Dnepropetrovskiy metallurgicheskiy institut i zavod im. Libknekhta.

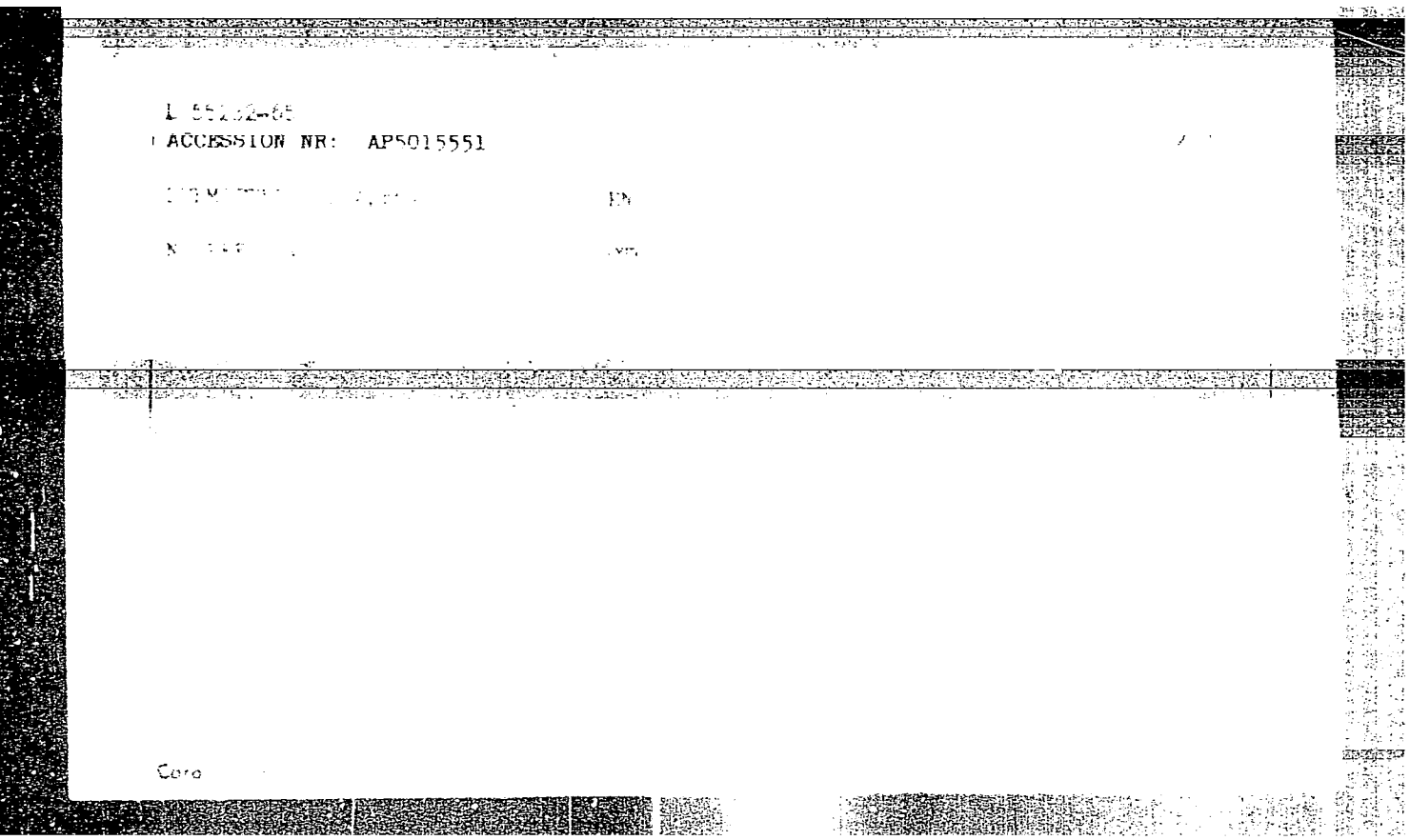
AUTHOR: Chernyavskiy, A. A.

TITLE: Hermetic cap. Class 62, No.

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 8, 1965, 96-97

TOPIC TAGS: aircraft equipment, herm

Card 1/3



L 55132-65
ACCESSION NR: AP5015551

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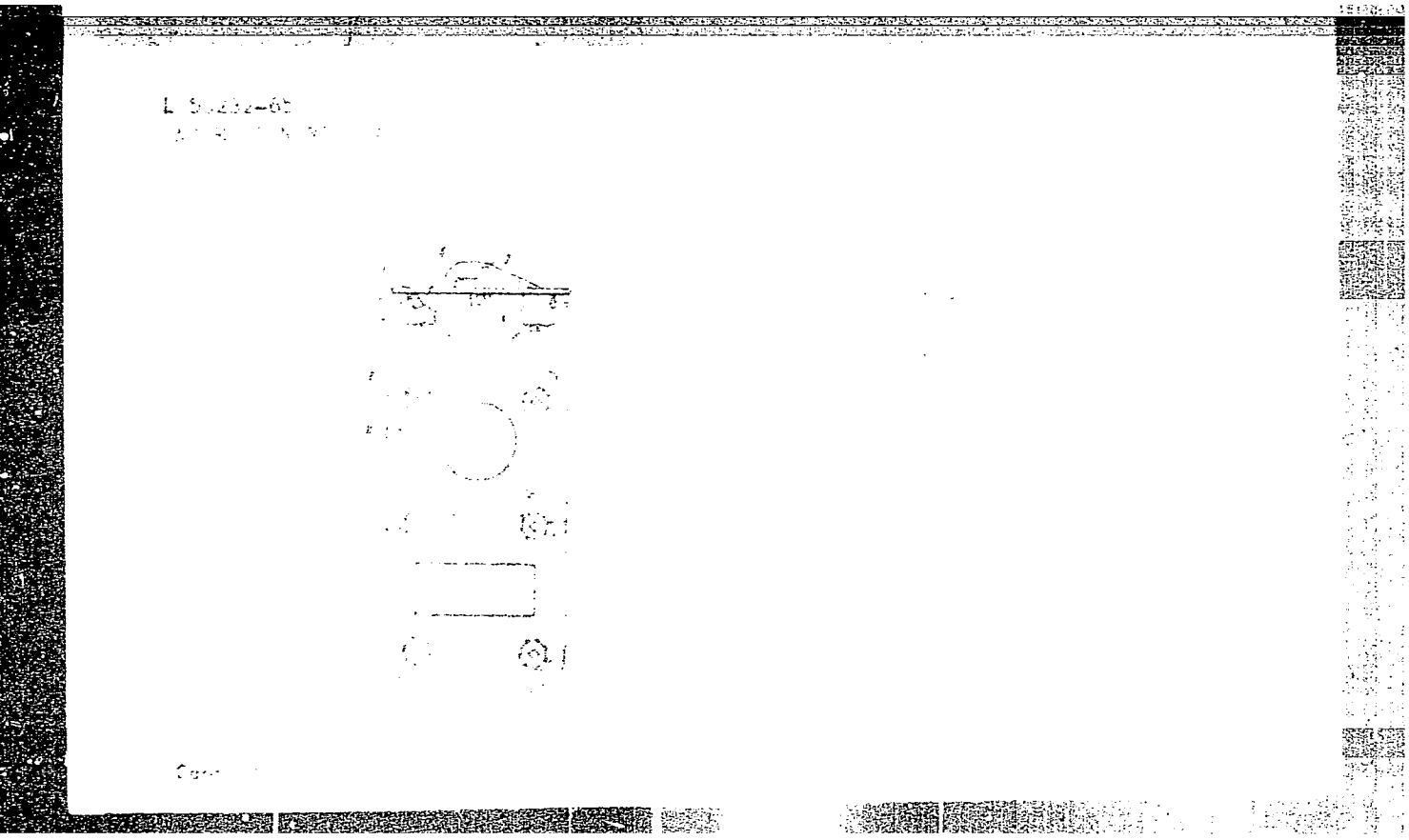


KUKOSH, V.I., prof.; CHERNYAVSKIY, A.A., dotsent; [illegible], L.V., [illegible] med. nauk

Cancer of the gastric stump following resection of the stomach for peptic ulcer and its surgical treatment. Khirurgiia 40 no.8: 3-8 Ag '64. (MIRA 18:3)

1. Kafedra fakul'tetskoy khirurgii (zav. - prof. V.I. Kukosh) Gor'kovskogo meditsinskogo instituta imeni Kirova.

KAZAKEVICH, F.P., kand. tekhn. nauk; STEPANENKO, V.F., inzh.;
LEBEDEV, P.M., inzh.; CHERNYAVSKIY, A.F., inzh.

Heat transfer in a combustion chamber during the burning of natural gas. Izv. vys. ucheb. zav.; energ. 7 no.2:51-56 F '64. (MIRA 17:3)

1. Dnepropetrovskiy khimiko-tekhnologicheskiy institut. Predstavlena kafedroy teplotekhniki.

KAZAKEVICH, F. P., kand. tekhn. nauk; STEPANENKO, V. F., inzh.;
LEBEDEV, P. M., inzh.; CHERNYAVSKIY, A. F., inzh.

Heat transfer in a ribbed feed-water economizer in a boiler system operating on natural gas. Teploenergetika 10 no.3: 54-56 Mr '63. (MIRA 16:4)

1. Dnepropetrovskiy inzhenerno-stroitel'nyy institut.

(Boilers)

L 08496-67 EWT(1)
ACC NR: AP6034231 SOURCE CODE: UR/0120/66/000/005/0134/0135

AUTHOR: Yefimchik, M. K.; Izokh, V. V.; Lakizo, V. I.; Podol'nyy, E. I.; Chernyavskiy, A. F.

ORG: Belorussian State University, Minsk (Belorusskiy gosudarstvennyy universitet)

TITLE: High-speed scaling circuit with tunnel diodes

SOURCE: Pribory i tekhnika eksperimenta, no. 5, 1966, 134-135

TOPIC TAGS: computer component, scaling circuit, tunnel diode, circuit design

ABSTRACT: A binary scaling circuit using three tunnel diodes (see Fig. 1) is investigated. It is largely free from the deficiencies characteristic of the widely

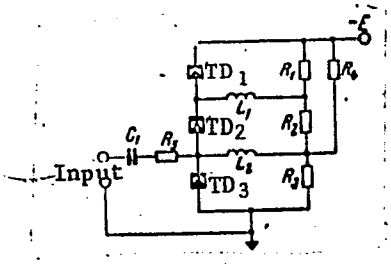


Fig. 1. Circuit diagram of a scaler with three tunnel diodes

Card 1/3 UDC: 621.374.32:621.382

used bridge-type scaling circuit with two tunnel diodes, which is sensitive to pulses of both polarities and has a tendency to shift the working point of the tunnel diode characteristic. The TD_1 and TD_2 diodes shown in Fig. 1, together with their resistances R_1 and R_2 and the inductance L_1, form a flip-flop circuit. The third tunnel diode TD_3, with its resistance R_3 and inductance L_2, forms a monostable multivibrator. Fig. 2. represents the volt-ampere characteristics of the whole system. Curve I

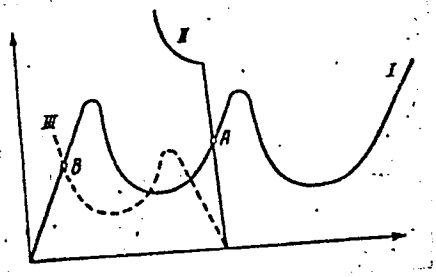


Fig. 2. Selection of operating conditions of the scaler shown in Fig. 1

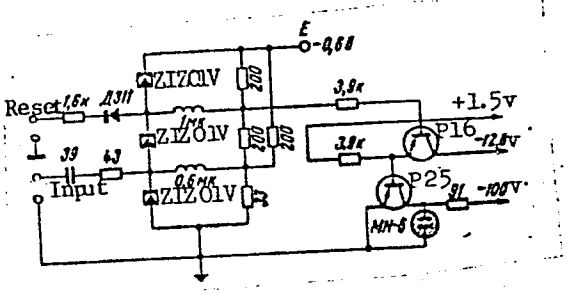


Fig. 3. Circuit diagram of a binary scaler with a neon lamp indicator

indicates the static volt-ampere characteristics of the flip-flop; curve II, the static load characteristic; and curve III, the dynamic load characteristic. R_4 regulates circuit sensitivity. It can be seen from Fig. 2 that the circuit is sensitive to pulses of positive polarity only as its d-c load characteristic is sufficiently steep, which results in a considerable extension of the dynamic range of this circuit. There is no need for the rigid power source stabilization necessary in the two-diode system. Fig. 3 represents a practical circuit diagram of a scaler equipped with three ZIZ01V tunnel diodes. This scaler operates stably even with no parameter identity of TD_1 and TD_2, with the input signal frequency up to 100 Mc, and with supply voltage fluctuations of ±25%. Orig. art. has: 6 figures.

SUB CODE: 09/ SUBM DATE: 11Sep65/ ORIG REF: 001/ OTH REF: 001/ ATD PRESS: 5103

L 48808-65 EWT(1)/EWA(h) Peb

ACCESSION NR: AP5011873

AUTHOR:

TITLE:

SOURCE:

TOPIC TAGS: counter, [illegible]

ABSTRACT: A [illegible] circuit triggered [illegible] (at zero-line crossover) of a bipolar pul[illegible] The [illegible] temperature variation of +10—+50C did not affect the functioning of [illegible] circuit. Orig. art. has: [illegible] figures.

Card 1/2

L 45808-65

ACCESSION NR: AP5011873

ASSOCIATION: Belorusskiy gosudarstv... ... P.
Universit...

SUBMITTED: 28Jan64 ENCL: 00 SUB CODE: ...

NO REF SOV: 003 OTHER: 003 ATD PRESS: 4003

Card 2/2

L 1121-66 EWT(1)/EEC(k)-2/T/EWA(h) IJP(c)
ACCESSION NR: AP5021374

UR/0120/65/000/004/0234/0235
621.373.51

AUTHOR: Yefimchik, M. K.; Izokh, V. V.; Chernyavskiy, A. F.

TITLE: Dynamic element using tunnel diodes

SOURCE: Pribory i tekhnika eksperimenta, no. 4, 1965, 234-235

TOPIC TAGS: pulse generator, tunnel diode, computer storage device

ABSTRACT: The principles of operation and characteristics of a dynamic storage element using tunnel diodes are presented. The element is designed on the principle of a circulating generator in which a section of a high-quality cable is used to store recoverable information. The principal circuit and a modification are shown in Fig. 1 of Enclosure. The modified circuit includes an inverted diode and an additional resistor to assure free passage of the signal from the end of the cable to the input. Both circuits are identical with respect to operating characteristics: a 300 kc—20-Mc pulse repetition rate and a 30×10^{-9} sec pulse width with n-germanium tunnel diodes; a 300 kc—100-Mc pulse repetition rate and 4×10^{-9} sec pulse width with gallium arsenide tunnel diodes. Stable operation of the circuits is maintained at supply voltage variations within ± 5%. The circuits are reported to be relatively

Card 1/3

L 1421-66

ACCESSION NR: AP5021374

2

simple, reliable, and economical. They can be used as high-speed circulating generators in vernier digital converters for nuclear electronics systems. Orig. art. has: 2 figures. [JR]

ASSOCIATION: Belorusskiy gosudarstvennyy universitet, Minsk (Belorussian State University) 44

SUBMITTED: 18Apr64 ENCL: 01 SUB CODE: DP, EC

NO REF SOV: 002 OTHER: 001 ATD PRESS: 4097

Card 2/3

L 1421-66

ACCESSION NR: AP5021374

ENCLOSURE: 01

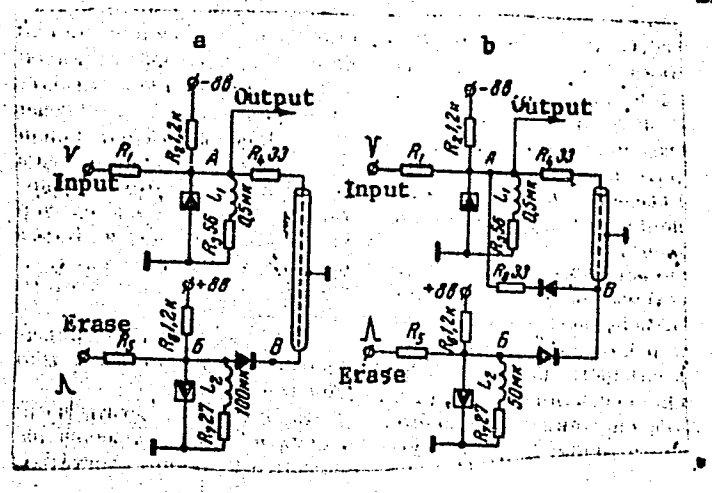


Fig. 1. Tunnel diode circuits

Card 3/3

L 63480-65 EWT(l)/EWT(m)/EWA(h) DIAAP

ACCESSION NR: AP5019831

AUTHOR: Pisarevskiy, A.N.; Yefimchik, M.K.; Izokh, V.V.; Chernyavskiy, A.F.

TITLE: New aspects of time measurements in nuclear spectroscopy /Report, Annual Conference on Nuclear Spectrosc[illegible] 2 Feb 1965/

SOURCE: AN SSSR. Izvestiya. Seriya fiz[illegible]

TOPIC TAGS: time interval counter, time mea[illegible] tunnel diode [illegible] semiconductor device

ABSTRACT: The authors describe three [illegible] scop[illegible] measurements. The purpose of [illegible] by employing tunnel diodes [illegible] Mc

Card 1/3

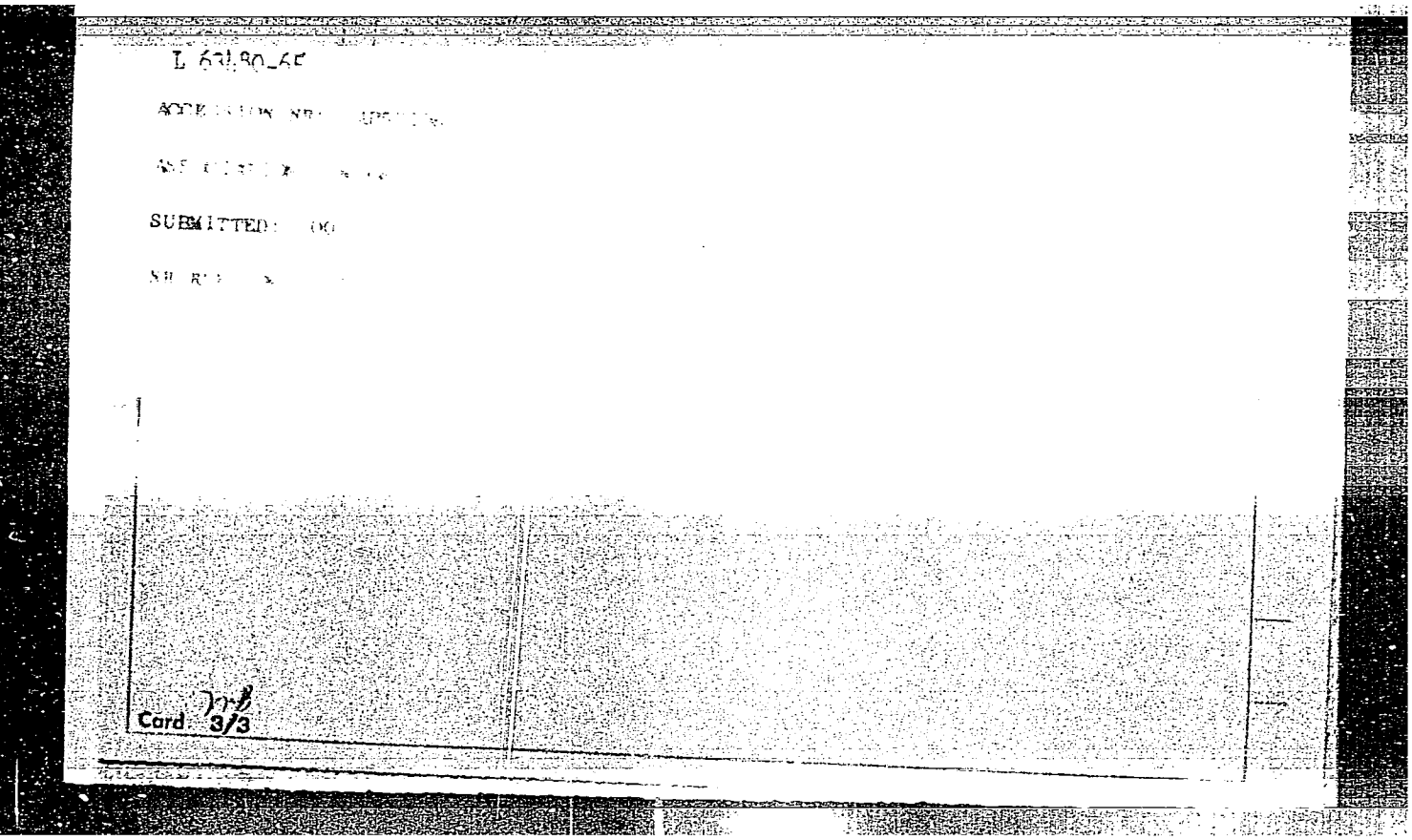
L 6?4?C-6?

ACCESSION NR: AP5019831

can measure time intervals up to 200 nan[illegible] automatic regulati[illegible] [illegible] the [illegible] from gate [illegible] accumulation of pulses in the register [illegible] In the third instrument [illegible] the time betw[illegible] [illegible] pulses [illegible] this [illegible] [illegible] intervals up to 0.01 sec could be measured with the same accuracy [illegible] rather than quartz

art. has: 2 formulas and 4 figures.

Card 2/3



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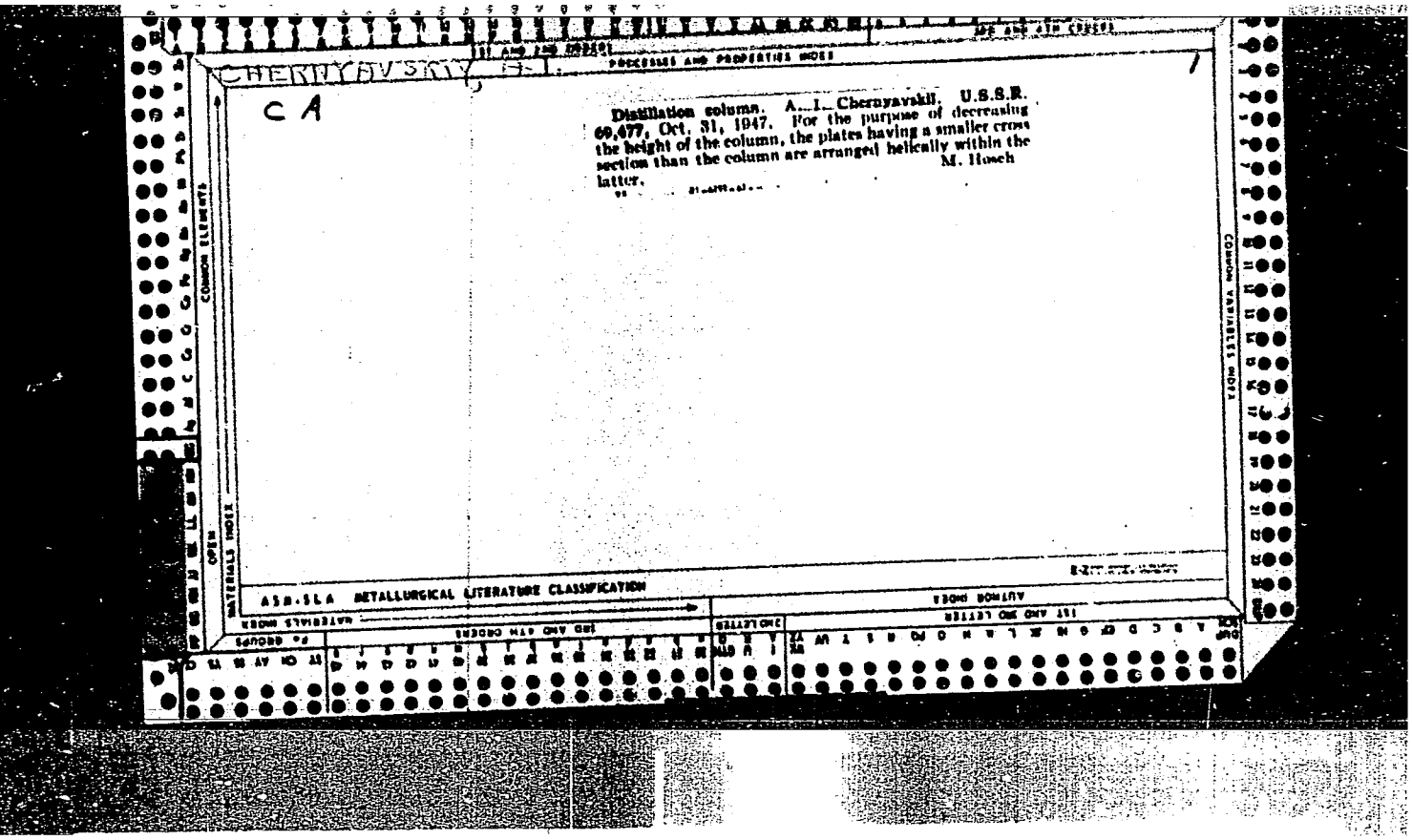

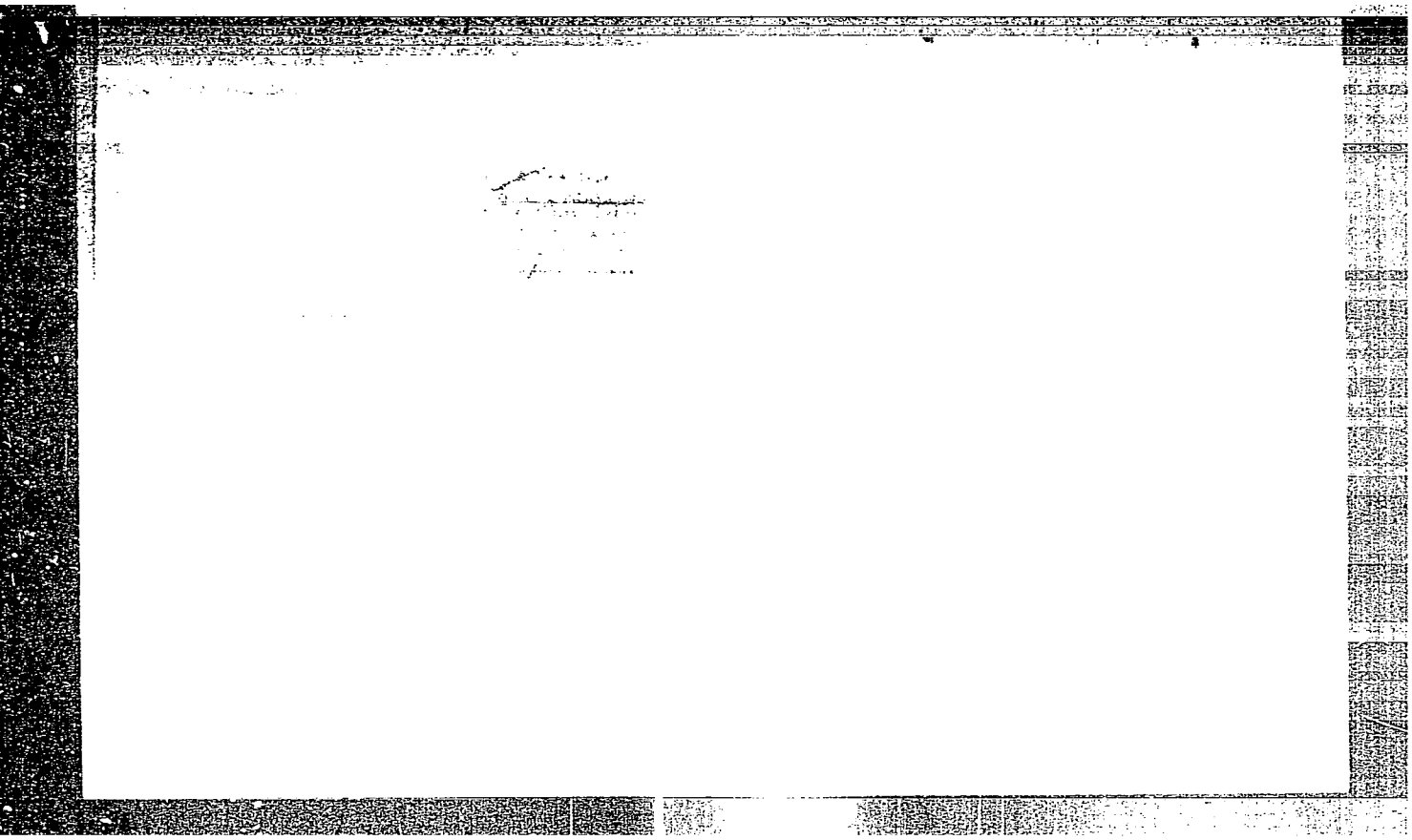

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USSR/Chemical Technology. Chemical Products and Their Application -- Fermentation industry, I-27

Abst Journal: Referat Zhur - Khimiya, No 2, 1957, 6470

Abstract: inside of which are set, in horizontal position, several rows of screens disposed in a roof-like manner, checkerboard fashion in the vertical direction. There is given a diagram of the unit as well as its principal dimensions and a description of its operation. It is assumed that the proposed unit will make it possible to reduce the duration of malt production, decrease expenditure of water for steeping, eliminate the need of compressed air and decrease the over-all dimensions of the steeping department building.

Card 2/2

CHERNYAVSKIY, A.I., dotsent, kand.tekhn.nauk

Effect of moisture on the mechanical characteristics of black alder wood. Sbor. trud. MISI no.13:59-93 '58. (MIRA 11:8)
(Wood--Moisture) (Alder)

L 00972-66

ACCESSION NR: AP5020204

UR/0332/65/000/008/0002/0006
665.3/35:663.853.493:631.563.2

AUTHORS: Karmazin, V. D.; Chernyavskiy, A. I. (Candidate of technical sciences) 4 13

TITLE: Investigation of aerodynamics and drying of rape seeds in the boiling layer

SOURCE: Maslozhirovaya promyshlennost', no. 8, 1965, 2-6

TOPIC TAGS: rape seed, drying, vegetable oil

ABSTRACT: The optimum conditions for the drying of rape seeds were determined, and the experimental drying installation is shown schematically. The rate of drying was found to be given by

$$-\frac{dW}{d\tau} = 6{,}09\cdot10^{-7}H^{-0{,}379}(7{,}8\cdot10^{-3}v + 1{,}28\times10^{-2})(1{,}48\cdot10^{-3}W + 1{,}8\cdot10^{-3})^{3{,}21}\ \%/\text{sec}.$$

where W - is the humidity in %, H - the initial depth of the seed layer in mm, v - the velocity of hot air in m/sec, t - the temperature, and τ - the time. It was also found that increasing the temperature of the seeds beyond 357C led to a considerable lowering of their quality. Orig. art. has: 1 table, 6 graphs, and 9 equations.

ASSOCIATION: L'vovskiy politekhnicheskiy institut (L'vov Polytechnical Institute)

SUBMITTED: 00 ENCL: 00 SUB CODE: GC,LS

NO REF SOV: 008 OTHER: 001

Card 1/1 90

CHERNYAVSKIY, A.L., kandidat tekhnicheskikh nauk, dotsent.

Book for rural road builders ("Building rural roads." A.K.Slavutskii. Reviewed by A.I.Cherniavskii). Avt.dor.19 no.3:31 Mr '56. (MLRA 9:7)

1.Poltavskiy institut inzhenerov sel'skokhozyaystvennogo stroitel'stva.
(Road construction) (Slavutskii, A.K.)

Chernyavskiy, A.L.

YANKELEVICH, Ye.I., kand.med.nauk; FLEROVSKIY, Ye.A.; CHERNYAVSKIY, A.L.; BREYNIN, R.M., red.

[Medical gymnastics for treating hypertension] Lechebnaya gimnastika pri gipertonicheskoy bolezni. Moskva, 1957. 63 p. (MIRA 11:1)

1. Moscow. Institut sanitarnogo prosveshcheniya.
(EXERCISE THERAPY) (HYPERTENSION)

CHERNYAVSKIY, A.N.

Mechanized unloading of annular kilns. Biul. TSNIICHM no. 8:44-45 '58. (MIRA 11:7)

1. Domodedovskiy ogneupornyy zavod.
(Brickmaking)

CHERNYAVSKIY, A.P.

Organization of high-speed mining in "Cherkasskaya-Severnaya" mine no.2 of the Leninugol' Trust. Ugol' Ukr. 4 no.3:32-33 Mr '60. (MIRA 13:6)

1. Glavnyy inzhener shakhty "Cherkasskaya-Severnaya" No.2 tresta Leninugol'.

(Donets Basin--Coal mines and mining)

CHERNYAVSKIY, A.P.

Speedy drivage of development workings in the "Cherkasskaya-Severnaya" No. 2 mine. Ugol' 36 no.1:29-31 Ja '61. (MIRA 14:1)

1. Glavnyy inzhener shakhty "Cherkasskaya-Severnaya" No.2 tresta Leninugol', Luganskiy sovnarkhoz.
(Donets Basin—Coal mines and mining)

CHERNYAVSKIY, A.P.; SUBBOTIN, A.S.

"Cherkasskaya-Severnaya" No.2 Mine makes 751 meters of haulageway per month. Ugol' 36 no.9:6-8 S '61. (MIRA 14:9)

1. Nachal'nik shakhty "Cherkasskaya-Severnaya" no.2 tresta Leninugol' (for Chernyavskiy). 2. Nachal'nik ugol'nogo otdela TSentral'nogo byuro tekhnicheskoy informatsii (for Subbotin).
(Donets Basin--Coal mines and mining)

CHERNYAVSKIY, A.P.

High rates of mining. Ugol' 38 no.11:10-11 N '63.
(MIRA 17:9)

1. Upravlyayushchiy trestom Pervomayskugol'.

CHERNYAVSKIY, A.P., inzh.

Making 502 meters of lateral drift in one month. Shakht. stroi. 8 no.8:20-22 Ag '64. (MIRA 17:9)

1. Upravlyayushchiy trestom Pervomayskugol'.

Chernyavskiy, A.R.

STUKKEY, A. L; CHERNYAVSKIY, A. R.

On white bile. Khirurgiia, Moskva no. 10:72-77 Oct. 1950.
(CIML 20:1)

1. Of the Hospital Surgical Clinic (Director — Yu. Yu. Dzhanelidze), First Leningrad Medical Institute imeni Academician I. P. Pavlov. 2. Z. V. Ogloblina has the title of Professor.

CHERNYAVSKIY, A.S., inzh.

Equipment for water injection into the coal bed for the purpose of reducing dust formation. Bor'ba s pyl. 6:19-25 '64
(MIRA 18:2)

1. Sibirskiy gosudarstvennyy proyektno-konstruktorskiy eksperimental'nyy institut gornogo mashinostroyeniya.

BELYAKOV, Yu.I., kand.tekhn.nauk; KONONENKO, A.A., inzh.; CHERNYAVSKIY, A.T., inzh.

Selection of parameters and plans of operation of a stacker with a productivity of 500 M³/hr. Nauch.zap.Ukrniiproekta no.5:112-118 '61. (MIRA 15:7)

(Conveying machinery)

AKSENOV, V.P.; ROZENPLENTER, A.E., kand. tekhn. nauk; CHERNYAVSKIY, A.T.

Efficient correlation between the height of the top and bottom scooping of rotary excavators. Met. i gornorud. prom. no.2:67-69 Mr-Ap '65. (MIRA 18:5)

VARGA, I.I.(Budapesht,Moskva); CHERNYAVSKIY, B.A. (Budapesht,Moskva); SHAL'NEV, K.K. (Budapesht,Moskva)

Method for studying the scale factor in cavitation erosion. PMTF no.3:122-129 My-Je '63. (MIRA 16:9)
(Cavitation)

SHAL'NEV, K.K.; CHERNYAVSKIY, B.A.

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1. Institut mekhaniki AN SSSR. Predstavleno akademikom P.Ya. Kochinoy.

CHERNYAVSKIY, D.L., kand. tekhn. nauk, dots. (Khar'kov)

Designing asymmetric braceless girders with rigid and semirigid struts. Issl. po teor. sooruzh. no.8:383-394 '59. (MIRA 12:12)

(Girders)

CHERNYAVSKIY, D.L., kand.tekhn.nauk; DORFMAN, Yu.I., inzh.; SHIMBERG, Ye.I.

Design of the unitized bodywork of the TE10 diesel locomotive. Vest.TSNII MPS 22 no.5:27-32 '63. (MIRA 16:8)

1. Khar'kovskiy politekhnicheskiy institut imeni V.I.Lenina i Khar'kovskiy zavod transportnogo mashinostroyeniya imeni V.A.Malysheva.

(Diesel locomotives--Design and construction)

CHERNYAVSKIY, D.L., kand. tekhn. nauk

Characteristics of the diesel locomotive body and methods for its design. Trudy VNITI no.19:66-86 '64.

Studying the state of stress of type TE3 truck frames as a three-dimensional system. Ibid.:98-119 (MIRA 18:3)

1. Khar'kovskiy politekhnicheskiy institut im. V.I. Lenina.

CHERNYAVSKIY, D.L. (Khar'kov)

Reducing stress concentration in a plate of unlimited dimensions having angular cuts. Prikl. mekh. 1 no.2:134-138 '65.

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1. Khar'kovskiy politekhnicheskiy institut.

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Modernization of the tenter dryer drive. Izv.vys.ucheb.zav.;tekh. tekst.prom. no.4:147-151 '60. (MIRA 13:9)

1. Kostromskoy tekstil'nyy institut.
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CHERNYAVSKIY, E.I., gornyy inzhener.

United States fire resistance tests for conveyer belts (from "Mining Equipment" no.6. '56.). Ugol' 32 no.2:44-45 F '57. (MLRA 10:3)
(United States--Conveying machinery)

MANAKOV, V.Ya., inzh.; CHERNYAVSKIY, E.I., inzh.

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(Mine fires) (Sereda, B.K.) (Sazhin, D.I.) (Bubok, K.G.) (Manakov, V.IA.) (Cherniavskii, E.I.)

ZAKHAROV, V.A., inzh.; CHERNYAVSKIY, E.I., inzh.

Blasting techniques for pyrite mines subject to sulfide dust explosion. Bezop.truda v prom. 6 no.8:23-26 Ag '62. (MIRA 16:4)
(Pyrites) (Mine dusts) (Blasting)

CHERNYAVSKIY, E.I., inzh.

Using thermocouples in detecting explosions and flashes of pyrite dust. Bezop.truda v prom. 7 no.2:26 F '63. (MIRA 16:2)
(Copper mines and mining—Safety measures)

CHIKULAYEV, S.; LARIN, D., inzh.; YEFIMOV, M.; CHERNYAVSKIY, E.I., inzh.; USLISTYY, B.S., inzh. po tekhnike bezopasnosti (Donetskaya oblast', gorod Ukrainsk)

Letters to the editors. Bezop.truda v prom. 9 no.4:54-55 Ap '65. (MIRA 18:5)

1. Zamestitel' glavnogo inzhenera po tekhnike bezopasnosti, priisk Leninskiy, Yakutskaya ASSR (for Chikulayev). 2. Upravleniye Yuzhno-Kazakhstanskogo okruga Gosudarstvennogo komiteta pri Sovete Ministrov KazSSR po nadzoru za bezopasnym vedeniyem rabot v promyshlennosti i gornomu nadzoru (for Larin). 3. Nachal'nik tekhnicheskoy informatsii i ratsionalizatsii Berezovskogo rudnika imeni Kirova (for Yefimov). 4. Ural'skiy nauchno-issledovatel'skiy i proyektnyy institut mednoy promyshlennosti, Sverdlovsk (for Chernyavskiy).

CHERNYAVSKIY, F.B.

Ecology of the long-tailed suslik of Verkhoyansk (Citellus undulatus Pall.). Biul. MOIP. Otd. biol. 64 no.3:17-22 My-Je '59.
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(Oyun-Yuryage Valley--Susliks)

CHERNYAVSKIY, F.B.

Materials on the biology of the snow sheep (Ovis nivicola Esch.) in the Koryak Upland. Biul. MOIP. Otd. biol. 66 no.6:61-76 N-D '61. (MIRA 14:12)

(KORYAK RANGE--SHEEP)

CHERNYAVSKIY, F.B.

Reproduction and growth of mountain sheep (Ovis nivicola Ecsh.) Zool.zhur. 41 no.10:1556-1566 O '62. (MIRA 15:12)

1. Zoological Institute, Academy of Sciences of the U.S.S.R., Leningrad.

(Koryak Range--Mountain sheep)

CHERNYAVSKIY, F.B.

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[Mammals of the Koryak Range; materials on their distribution, abundance, biology and economic significance] Mlekopitaiushchie Koriatskogo nagor'ia; materialy po rasprostraneniiu chislennosti biologii i ekonomicheskomu znacheniiu. Moskva, Izd-vo AN SSSR, 1963. 129 p.
(MIRA 16:12)

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CHERNYAVSKIY, F.B.

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(MIRA 17:6)

1. Zoologicheskiy institut Akademii nauk SSSR, Leningrad.

CHERNYAVSKIY, F.B., kand.biolog.nauk (Leningrad)

Koryak Highland. Priroda 53 no. 11:81-89 '64. (MIRA 18:1)

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Some data on the morphology of Ovis nivicola Esch. Biul. MOIP. Otd. biol. 69 no.1:122-126 Ja-F '64. (MIRA 17:4)

USPENSKIY, S.M., doktor biolog. nauk; CHERNYAVSKIY, F.B., kand. biolog. nauk

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1. Moskovskiy gosudarstvennyy universitet (for Uspenskiy).
2. Zoologicheskiy institut AN SSSR, Leningrad (for Chernyavskiy).

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Chernyavskiy, F. I. "Remodeling of the asynchronous movements in synchronous generators," Trudy Novocherkas. politekhn. in-ta im. Ordzhonikidze, Vol. XVIII, 1948, p. 61-63

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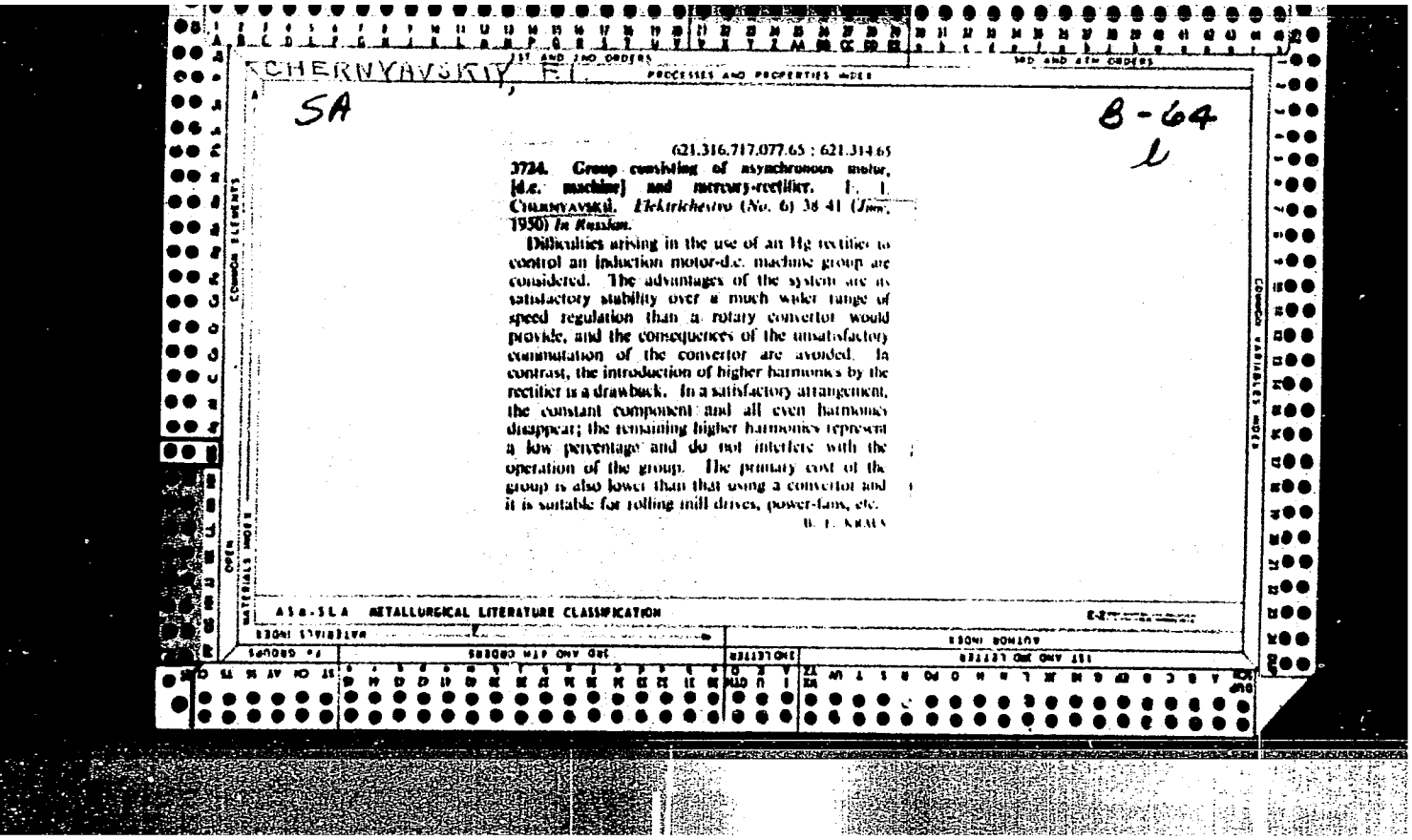

CHERNYAVSKIY, E. I.

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3724. **Group consisting of asynchronous motor, [d.c. machine] and mercury-rectifier.** E. I. CHERNYAVSKII. *Elektrichestvo* (No. 6) 38 41 (June, 1950) *In Russian.*

Difficulties arising in the use of an Hg rectifier to control an induction motor-d.c. machine group are considered. The advantages of the system are its satisfactory stability over a much wider range of speed regulation than a rotary convertor would provide, and the consequences of the unsatisfactory commutation of the convertor are avoided. In contrast, the introduction of higher harmonics by the rectifier is a drawback. In a satisfactory arrangement, the constant component and all even harmonics disappear; the remaining higher harmonics represent a low percentage and do not interfere with the operation of the group. The primary cost of the group is also lower than that using a convertor and it is suitable for rolling mill drives, power-fans, etc.

B. I. KRAUS

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

YAKUBOVSKIY, V. Ya. (Eng.); BERGER, Prof.A. Ya.
CHERNYAVSKIY, Docent F. I.; ZAVALISHIN, Dr. D. A.

Electric Machinery - Testing

L. M. Pyotrovskiy and Ye. A. Pal's book "Testing electrical machines."
Prof. A. Ya. Berger, Docent F. I. Chernyavskiy Eng. V. Ya. Yakubovskiy, Dr. D. A.
Zavalishin, and others. Elektrichestvo No. 5, 1952.

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1. PRESS, S. A., CHERNYAVSKIY, F. I., BALUYEV, V. K. Eng., GRUSHEVSKIY, B. V. Docent

2. USSR (600)

4. Electric Engineering

7. Comments on the textbook "General Electrical engineering," edited by S. A. Press, F. I. Cherniavskiy, Eng. V. K. Baluyev, Docent B. V. Grushevskiy. Elektrichstvo No. 2, 1953.

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CHERNYAVSKIY, F.I., dotsent, kandidat tekhnicheskikh nauk.

Experimental determination of the efficiency coefficient for cascade asynchronous motors with mercury rectifiers. Nauch. trudy NPI 26:321-324 '55. (MLRA 9:12)
(Electric motors, Induction) (Mercury-arc rectifiers)

SOV/112-57-9-18691

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1957, Nr 9, p 87 (USSR)

AUTHOR: Chernyavskiy, F. I.

TITLE: Cross-Field Machine as a General Case of the DC Machine (Mashina poperechnogo polya kak obshchiy sluchay mashiny postoyannogo toka)

PERIODICAL: Tr. Novocherkas. politekhn. in-ta, 1956, Nr 33/47, pp 36-43

ABSTRACT: A cross-field machine is analyzed as a general case of the DC machine; in the cross-field machine, in addition to the conventional 1-1 brushes referred to as "transverse," "primary," or "motor-type," a pair of 2-2 brushes is provided for each pair of poles; the 2-2 brushes are shifted with regard to 1-1 brushes by one pole pitch and called "longitudinal," "secondary," or "generator-type." All quantities corresponding to the "primary" axis have the subscript "1," to the "secondary" axis, "2." The following assumptions have been made: (1) the stator carries exciting windings in axis 1, exciting windings in axis 2; (2) axes 1 and 2 have different permeances; (3) voltage drops in brush contacts 1 and 2 are different and, there-

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Cross-Field Machine as a General Case of the DC Machine

fore, armature resistance is different for both circuits. From the equation of the primary power, an expression can be derived for the torque of a cross-field motor. Such a motor can develop a reactive torque if the permeance values for axes 1 and 2 are different. Because of this reactive torque, the motor can rotate without any stator excitation -- a fact corroborated by experiments. Equations for a number of specific cases can be derived from the general equations. If in the general equations the generator axis-1 current and the motor axis-2 current be equated to zero, the equations of a conventional DC machine will result. If in the general equations the assumption of $U_1 = 0$ is made (1-1 brushes short-circuited), and if the effect of compensating windings is allowed for, amplidyne equations will result. If in the general equations $U_1 = 0$ and the effects of the separate-excitation winding and series-field winding acting along axis 2 are allowed for, equations of a cross-field welding generator will result. All the above equations for specific cases show that the fundamental properties of various DC machines can be found from the general equation for the cross-field machine.

O.I.Z.

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SOV/112-58-2-2180

Translation from: Referativnyy zhurnal, Elektrotekhnika, 1958, Nr 2, p 62 (USSR)

AUTHOR: Chernyavskiy, F. I.

TITLE: A Determination of Scalar Magnetic Potential in Electric Machinery (Opredeleniye skalyarnogo magnitnogo potentsiala v elektricheskikh mashinakh)

PERIODICAL: Tr. Novocherk. politekhn. in-ta, 1956, Vol 43/57, pp 37-43

ABSTRACT: A method is suggested for calculating the magnetic potential of a flat field on the basis of concentrated current. A calculation applicable to a DC machine is given. A comparison of experimental and design data reveals that the method suggested is simple and no less accurate than the graphic-analytical method.

B.Ya.G.

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SOV/144-58-8-9/18

AUTHOR: Chernyavskiy, F.I., Candidate of Technical Sciences, Docent

TITLE: Experimental Determination of the Losses in Steel in the Case of Pulsating Currents (Opytnoye opredeleniye poter' v stali pri pul'siruyushchem toke)

PERIODICAL: Izvestiya Vysshikh Uchebnykh Zavedeniy, Elektromekhanika, 1958, Nr 8, pp 74 - 77 (USSR)

ABSTRACT: The experiments were carried out by means of a 2 kVA, 220/145 V transformer. The 220 V winding was fed by an AC for which the frequency could be regulated; the 145 V winding was fed by DC. A large inductance was connected into the 145 V circuit as a result of which the AC component of the current was almost completely eliminated in this circuit. By changing the current intensity in both windings, various ratios could be achieved between the DC and the AC components of the current and, correspondingly, various magnitudes of the pulsations of the magnetic flux in the transformer core. The experimental results have shown that the losses in steel in the case of a pulsating magnetising current and a DC component of a low value are higher than the corresponding value of the losses for a purely alternating current. The maximum of

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Experimental Determination of the Losses in Steel in the Case of Pulsating Currents

the losses in steel in the case of a pulsating current corresponds approximately with the maximum of the permeability. With further increase in the magnitude of the DC component, the losses in the steel decrease. The losses in steel magnetized by means of a pulsating current increase with increasing frequency. The law of changes in these losses as a function of the frequency differs from that pertaining to a purely alternating current. For certain magnitudes of the DC component of the current, the losses in the steel vary in proportion to the frequency; if the magnitude of the DC component increases further, the losses in the steel increase more slowly than the frequency. In the case of saturation of the magnetic circuit, the hysteresis losses in a circuit fed by a pulsating current can be calculated approximately by means of the "tangent method", which is described in this paper. There are 4 figures.

ASSOCIATIONS: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnical Institute)

SUBMITTED: July 8, 1959

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SOV/144-59-7-16/17

AUTHOR: Chernyavskiy, F.I. (Cand. Tech. Sci., Docent)

TITLE: A Scientific-Technical Conference on the Commutation of Electrical Machines

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1959, Nr 7, pp 108-110 (USSR)

ABSTRACT: The Ministry of Higher Education of the USSR decided to call the first All-Union Scientific-Technical Conference on commutation in electrical machines. The conference was held from the 3rd to the 6th July 1959 in the Novocherkassk Polytechnical Institute and the transactions of the conference will be published in this journal. There were more than 100 delegates from 14 colleges, 8 research institutes and 15 industrial undertakings. Twenty-two reports were read, covering a very wide range of questions on the theory, investigation and adjustment of commutation in various types of electrical machine. Cand.Tech.Sci. O.G. Vegner of Leningrad described experimental and theoretical work on commutation carried out in the Leningrad branch of the Scientific Research Institute of the electrical industry. He considers that the absence of an integrated approach has made the problem of commutation appear unnecessarily complicated, and proposed

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A Scientific-Technical Conference on the Commutation of Electrical Machines

the setting up of a co-ordinating council on commutation and brushes and the strengthening of research work on the subject. Professor Ye.M. Sinel'nikov and Aspirant A.G. Nazikyan of the Novocherkassk Polytechnical Institute described a new method of investigating and adjusting commutation which is very useful in determining the required characteristics of d.c. machine interpoles. Cand.Tech.Sci. V.P. Tolkunov of the Khar'kov Polytechnical Institute considered the influence on commutation of various d.c. machine constants such as the width of the interpole tip, the field of the main poles, brush characteristics and so on. Professor M.S. Karasev, Dr.Tech.Sci., of the Tomsk Elektro-Mechanical Institute of Railway Transport Engineers, discussed the causes of sparking of brushes and the determination of their commutating capacity. He considered mechanical defects in the commutator to be a major cause of sparking. The remaining reports are described very briefly, usually with little more than author and title; as they are to be published in this journal soon they are not all listed here. The conference noted that electrical brushes are

A Scientific-Technical Conference on the Commutation of Electrical Machines

not being produced in sufficient range or of good enough quality. Most investigations on commutation and brushes have not reached the stage of making practical recommendations to industry. Published works seem to rely too much on the classical theory of commutation and to pay insufficient attention to recent developments. Further attention is required to the theory of commutation. The calculation, design and construction of machines and the elucidation of their commutating properties should be improved. Intensive study is required on the role of brushes in the process of commutation and in the development of new improved grades of brushes. Because of the requirements of railway electrification, special attention should be paid to the commutation of a.c. motors and of motors operating on pulsating voltage. The conference considered it necessary to organise under the management of the Scientific-Technical Society of the Electrical Industry a co-ordinating committee for systematic exchange of information and co-ordination of research work on commutation. It was considered advisable to hold an

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annual conference on commutation of machines, and to invite the participation of manufacturers and operators of electrical machinery.
There are no figures, no tables, no references.

ASSOCIATION: Novocherkasskiy politekhnicheskiy institut (Novocherkassk Polytechnical Institute)

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E194/E355

AUTHORS: Sinel'nikov, Ye.M., Doctor of Technical Sciences, Professor, Departmental Head, Nazikyan, A.G., Assistant, Kleymenov, V.V., Head of Laboratory and Chernyavskiy, F.I., Candidate of Technical Sciences

TITLE: The Use of Analogue Computers to Investigate the Commutation of DC Machines

PERIODICAL: Izvestiya vysshikh uchebnykh zavedeniy, Elektromekhanika, 1960, No. 10, pp. 58 - 77

TEXT: It is impossible to provide a strict analytical solution of commutation problems in DC and AC machines because of the complex nonlinear character of the differential equations involved. Assumptions that are made to simplify the equations lead to errors in these solutions.
The development of computers offers new prospects of solving commutation problems. These devices can solve the problems involving the complex differential equations of the commutation process without introducing crude simplifying assumptions.
The first practical attempt to use modern high-speed computers

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for calculations on commutation was reported by Alger and Bewley in Power Apparatus and Systems, August, 1957. These authors used a digital computer and because of the cumbersome algorithms it was necessary to make a number of simplifications and exclude various factors which are important in practice. In particular, it was necessary to simplify the volt-ampere characteristic of the brushes and to assume sinusoidal flux distributions of the interpoles.
In comparing the advantages of digital and analogue computers for solving commutation problems it should be remembered that existing procedures for calculating the parameters that enter into the equation do not utilise the potential accuracy of computers. Accordingly, in this case, the accuracy of digital machines is of no advantage as compared with that of analogue computers which are adequate for the purpose. With an analogue computer it is possible to obtain a number of output magnitudes

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such as the voltage between commutator bars, currents in sections and their differential coefficients, voltages as the commutator bars leave the brush and other magnitudes. With digital machines each of these magnitudes would require a fresh algorithm. Accordingly, at the present time analogue computers have considerable advantages for work of this kind. In the present work the authors show the extensive possibilities of analogue computers for calculating and explaining various factors that influence the commutation process. It would be difficult or impossible to study these factors by existing procedures. The assumptions that were made in applying the method are then stated. The more important are: the self-induction coefficients of short-circuited sections and mutual induction coefficients between simultaneously commutating sections do not depend on the value of current or the angular position of the rotor; for any given slot section the inductance is the same as that of any other corresponding

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section in other armature slots; section and loop resistances are constant; the voltage drop in the brush contact depends on the current density and not on the speed. The direct-current machine for which the differential equations of commutation were formulated was of the following characteristics: 2.6 kW, 220 V, rated current 14 A, speed 1400 r.p.m. The armature has a diametral pitch winding with three sections per slot and the commutator bar width is 7.5 mm with 1 mm of mica between. The brush is 15.5 mm wide and can short-circuit one or two sections simultaneously. Fig. 1 shows a schematic section of the winding undergoing commutation under two brushes of opposite polarity. In view of the assumptions that are made, if the brushes are similarly located relative to the neutral position, brushes of opposite polarity have identical volt-ampere characteristics, and the laws of change of current in analogous sections short-circuited by brushes of opposite polarity are the same. Accordingly, there is no need to

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write down twice the differential equations of commutation for identical sections and correspondingly to double the electronic model. Hence the circuit of Fig. 1 may be simplified to obtain that of Fig. 2, and as in the real machine the resistance of the risers is small they are omitted. In formulating the equations of commutation it is convenient to measure time from the start of commutation of a section; in particular, the start of commutation of sections 2-3 in Fig. 2 is considered. The commutation process is cyclic and is repeated after the armature has passed through a single-tooth pitch. The commutation cycle may be divided into three stages, each of which introduces new operating conditions in some section. Fig. 3 shows equivalent circuits of section commutation for all stages of a complete cycle. There are nine of them. Eq. (1) is then written for the first section of the slot in operator form for all stages of commutation. In the second stage the equation takes the form of Eq. (2)

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which is the equation of damping of current oscillations in the section 1-2. In the next four stages of section 1-2 the first section of the first slot is not commutated. However, the process of modelling commutation of this section is incomplete since no allowance has been made for the start of commutation of the section 1-2. The method of allowing for this is explained, and Eq. (3) is derived. In the next, eighth stage, Eq. (3) is again valid. The ninth stage of commutation commences when electromagnetic oscillations in section 3-1 are terminated and is described by differential equation (4). The nonlinear differential equations (1), (2) and (3) for the first section must be solved simultaneously with similar equations for other sections for the same stages of commutation. Consequently, the electronic model which is required to solve the equations should automatically on completing the solution of one system of equations reconnect in the next stage of

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commutation to solve another system of equations to give a continuous solution of the commutation process on the machine output. Thus, from the mathematical standpoint the process of commutation is determined by a system of differential equations with coefficients which are discontinuous functions of time. Differential equations (1) and (2) may be combined to give an expression of the form of Eq. (5). Similarly, expressions (3) and (4) may be united into the general equation (6). Finally, to obtain the most compact electronic model, Eqs. (5) and (6) should be united into a more general equation for the first section of the slot, which will be of the form of Eq. (7). Eqs. (1a) and (3a) are then combined to obtain a general expression (7a). Similar expressions (8) and (8a) are obtained for the second section of the slot and Eqs. (9) and (9a) for the third section of the slot.
Eqs. (7), (8) and (9) are solved relative to the differential coefficient of current for the first, second and third sections

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of the slot, and on introducing other necessary terms Eqs. (7'), (8') and (9') are obtained. The reason for writing the expressions in this form is explained. The Eqs. (7') - (9') and (7a) - (9a) were used to formulate the analogue-computer block circuit diagram shown in Fig. 4, the notation of the block-circuit components being given in Table 1. Table 2 notes certain parameters of the DC machine investigated; the scales used are stated. Table 3 gives coefficients of the block-circuit of the electronic model with the circuit of Fig. 4. Fig. 6 shows the law of change during the process of commutation of the area of contact between the brush and the corresponding commutator bar. Vales of section capacitance on the machine investigated were determined with a ballistic galvanometer, using the circuit of Fig. 7.
A description is then given of the electronic model whose block-circuit diagram is given in Fig. 4. In order to

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understand all the mathematical operations carried out by the model in a complete commutation cycle it is sufficient to follow the solution of the equations of any one section. Accordingly, solution of the equations of commutation of the first section of the slot (7') and 7a) is considered. The way in which the various values shown in the block-circuit diagram of Fig. 4 are obtained is explained. It is shown that on the model it is possible to follow the solution of the necessary equations for a complete cycle of commutation of the machine. The model was designed to reproduce the process of commutation continuously, i.e. to solve the equations in a time of 255 sec, which corresponds to the time of the commutation cycle on the time scale chosen. When the calculations for one cycle are complete the computer stops and a further current setting may be made. The operation of repeated starting could have been made automatic but the complication involved was not worth while.

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Some results are then given of the solution of the commutation equations. Oscillograms of current in commutating sections obtained with the model are shown in Fig. 8 and the shape of the curves is discussed. Corresponding curves with higher values of e.m.f. are plotted in Fig. 9, and again the shape is discussed. These curves show that with the machine investigated satisfactory commutation cannot be obtained with a uniform field in the commutation zone. The optimum field can very easily be selected on the model and changes in section current with optimum field in the commutation zone are plotted in Fig. 10. Fig. 11 gives oscillograms of currents in the section assuming that there is no voltage drop in the brush contact. It will be seen that because of the intensive magnetic linkage between sections the values of section current are much closer together in this case. Consequently, the greater the voltage drop in the contact the greater the counteraction to the effect of equalising current in the section and

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the more uniform the process of current change in the section. Fig. 13 shows curves of changes of current in two section short-circuited by two brushes of opposite polarity. The curves were taken oscillographically on an actual DC machine; the method is briefly explained. It will be seen that there is satisfactory agreement between the curves obtained on the machine and with the computer and this confirms the method of formulating the differential equations for modelling.
The general principles of formulating equations of commutation and block-circuit diagrams of an electronic model are then considered. This section for the most part repeats the explanations given in preceding parts of the article. It is shown, however, that in writing the expressions for the transient process in analytical form the requisite number of commutation equations need not exceed the maximum number of commutator bars covered by both brushes.
It is concluded that the principles described in the article

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may easily be used to construct a model of a DC machine with any practical number of sections in the slot and with any width of brushes. By making very simple changes in the coefficients and other parameters of the model it may be used to study commutation processes in DC machines with different winding pitches and with any number of sections in the slot or widths of brush.
The following data may be obtained for each of the variants: the nature of current changes in the sections and their differential coefficients; the nature of current changes in the risers; the law of change of voltage drop in the brush contacts; the law of change of current density in the brush contact and the voltage of the commutator bar relative to the brush at the moment of exit of the section from commutation.
The influence on the above characteristics of the following factors may be considered: the field shape in the commutation

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zone of the machine; the grade of brushes and the effect of too early interruption of contact between brush and commutator bar. Further work with electronic modelling methods and the development of special analogue computers will make it possible to discard most of the ill-founded assumptions that are usually made, including some tolerated in this article. Then a more complete study can be made of the commutation process. There are 13 figures, 3 tables and 3 references: 2 Soviet and 1 non-Soviet.

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