SHEKHTER, O.Ya.; DIDUKH, B.I.; IOSELEVICH, V.A.; KRYZHANOVSKIY, A.L.

Book reviews and bibliography. Osn., fund.i mekh.grun. 4
no.2:31-32 '62.   (MIRA 15:8)
                    (Bibliography—Soil mechanics)

SHEKHTER, O.Ya.

Computation of displacements and stresses on the boundaries
of a fourth of a surface under concentrated forces which are
normal and tangential to the boundary. [Trudy] NII osn. no.49:
17-32 '62.   (MIRA 15:12)
          (Strains and stresses)   (Wedges)

BARKAN, D.D.; SHEKHTER, O.Ya.

Theory of the surface compaction of soil. [Trudy] NII osn.
no.51:5-26 '62.   (MIRA 16:2)
(Soil stabilization)
(Vibrators)

SHEKHTER, O.Ya.; MINEYEV, L.N.; LEVSHINSKIY, D.S.; IVANOVA, L.I.

Laboratory apparatus for determining elastic and dissipative
properties of soil using a dynamic method. [Trudy] NII osn.
no.51:58-67 '62.   (MIRA 16:2)
                    (Soil mechanics)

SNITKO, Nikolay Konstantinovich, zasl. deyatel' nauki i tekhn.RSFSR,
    doktor tekhn.nauk, prof.; GORBUNOV-POSADOV, M.I., prof.,
    retsenzent; SHEKHTER, O.Ya., prof., retsenzent; KLEYN, G.K.,
    prof., retsenzent; KANDAUROV, I.I., doktor tekhn.nauk, prof.,
    nauchnyy red.; REYZ, M.B., red. izd-va; PUL'KINA, Ye.A.,
    tekhn. red.

[Static and dynamic earth pressure and the design of retain-
ing walls] Staticheskoe i dinamicheskoe davlenie gruntov i
raschet podpornykh stenok. Leningrad, Gosstroiizdat, 1963.
294 p.   (MIRA 16:8)
        (Earth pressure)   (Retaining walls)

SHEKHTER, O.Ya.

Study of the distribution of waves from the load applied to the top end of
a continuous long rod. [Trudy] NII osn. no.53:67-85 '63.

(MIRA 17:1)

SHILKHIT, G.Ya.

    Propagation of waves in a semi-infinite elastic rod during
an impact along its upper end with consideration for the
lateral dampening reactions of the soil. Sbor. trud. NIImon.
no.54:66-79 '64.

Quarter of a plane with a rigid wall. Ibid.:80-88

                                (MIRA 17:10)

SHEKHTER, O.Ya.

Effect of elastic and damping lateral soil reaction on the propagation of waves in an elastic semi-finite rod. Stor. trud. NIIosn. no.55:27-37 '64.

Determining the parameters of the relation between stresses and shifts during impact testing of piling. Ibid.:57-78

(MIRA 18:3)

SHEKHTER, O.Ya.

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Osn.,fund. i mekh.grun. 7 no.1:7-8 '65.

(MIRA 18:4)

Shekhter, O.Ya.

Concentrated force applied within an elastic wedge. Osn.,
fund. i mekh. grun. 7 no. 6:6-8 '65.   (MIRA 18:12)

ANDON'YEV, V.L.; BAUM, V.A.; BAUMGARTEN, N.K.; BEREZIN, V.D.; BIRYUKOV, I.K.;
    BIRYUKOV, S.M.; BLOKHIN, S.I.; BOROVOY, G.A.; BULEV, M.Z.; BURAKOV,
    N.A.; VERTSAYZER, B.A.; VOVK, G.M.; VORMAN, B.A.; VOSHCHININ, A.P.;
    GALAKTIONOV, V.D., kand. tekhn. nauk; GENKIN, Ye.M.; GIL'DENBLAT,
    Ya.D., kand. tekhn. nauk; GINZBURG, M.M.; GLEBOV, P.S.; GODES, E.G.;
    GORBACHEV, V.N.; GRZHIB, B.V.; GREKULOV, L.F., kand. s.-kh. nauk;
    GRODZENSKAYA, I.Ya.; DANILOV, A.G.; DMITRIYEV, I.G.; DMITRIYENKO,
    Yu.D.; DOBROKHOTOV, D.D.; DUBININ, L.G.; DUNDUKOV, M.D.; ZHOLIK,
    A.P.; ZENKEVICH, D.K.; ZIMAREV, Ye.V.; ZIMASKOV, S.V.; ZUBRIK, K.M.;
    KARANOV, I.F.; KNYAZEV, S.N.; KOLEGAYEV, N.M.; KOMAREVSKIY, V.T.;
    KOSENKO, V.P.; KORENISTOV, D.V.; KOSTROV, I.N.; KOTLYARSKIY, D.M.;
    KRIVSKIY, M.N.; KUZNETSOV, A.Ya.; LAGAR'KOV, N.I.; LGALOV, V.G.;
    LIKHACHEV, V.P.; LOGUNOV, P.I.; MATSKEVICH, K.F.; MEL'NICHENKO,
    K.I.; MENDELEVICH, I.R.; MIKHAYLOV, A.V., kand. tekhn. nauk;
    MUSIYEVA, R.N.; NATANSON, A.V.; NIKITIN, M.V.; OVES, I.S.;
    OGUL'NIK, G.R.; OSIPOV, A.D.; OSMER, N.A.; PETROV, V.I.; PERYSHKIN,
    G.A., prof.; P'YANKOVA, Ye.V.; RAPOPORT, Ya.D.; REMEZOV, N.P.;
    ROZANOV, M.P., kand. biol. nauk; ROCHEGOV, A.G.; RUBINCHIK, A.M.;
    RYBCHEVSKIY, V.S.; SADCHIKOV, A.V.; SEMENTSOV, V.A.; SIDENKO, P.M.;
    SINYAVSKAYA, V.T.; SITAROVA, M.N.; SOSNOVIKOV, K.S.; STAVITSKIY,
    Ye.A.; STOLYAROV, B.P. [deceased]; SUDZILOVSKIY, A.O.; SYRTSOVA,
    Ye.D., kand. tekhn. nauk; FILIPPSKIY, V.P.; KHALTURIN, A.D.;
    TSISHEVSKIY, P.M.; CHERKASOV, M.I.; CHERNYSHEV, A.A.; CHUSOVITIN,
    N.A.; SHESTOPAL, A.O.; SHEKHTER, P.A.; SHISHKO, G.A.; SHCHERBINA,
    I.N.; ENGEL', F.F.; YAKOBSON, A.G.; YAKUBOV, P.A., ARKHANGEL'SKIY,
                        (Continued on next card)

ANDON'YEV, V.L.... (continued)   Card 2.

Ye.A., retsenzent, red.; AKHUTIN, A.N., retsenzent, red.; BALASHOV,
Yu.S., retsenzent, red.; BARABANOV, V.A., retsenzent, red.; BATUNER,
P.D., retsenzent, red.; BORODIN, P.V., kand. tekhn. nauk, retsenzent,
red.; VALUTSKIY, I.I., kand. tekhn. nauk, retsenzent, red.;
GRIGOR'YEV, V.M., kand. tekhn. nauk, retsenzent, red.; GUBIN, M.F.,
retsenzent, red.; GUDAYEV, I.N., retsenzent, red.; YERMOLOV, A.I.,
kand. tekhn. nauk, retsenzent, red.; KARAULOV, B.F., retsenzent,
red.; KRITSKIY, S.N., doktor tekhn. nauk, retsenzent, red.; LIKIN,
V.V., retsenzent, red.; LUKIN, V.V., retsenzent, red.; LUSKIN, Z.D.,
retsenzent, red.; MATRIROSOV, A.Kh., retsenzent, red.; MENDELEYEV,
D.M., retsenzent, red.; MENKEL', M.F., doktor tekhn. nauk, retsenzent,
red.; OBREZKOV, S.S., retsenzent, red.; PETRASHEN', P.N., retsenzent,
red.; POLYAKOV, L.M., retsenzent, red.; RUMYANTSEV, A.M., retsenzent,
red.; RYABCHIKOV, Ye.I., retsenzent, red.; STASENKOV, N.G., retsen-
zent, red.; TAKANAYEV, P.F., retsenzent, red.; TARANOVSKIY, S.V.,
prof., doktor tekhn. nauk, retsenzent, red.; TIZDEL', R.R., retsen-
zent, red.; FEDOROV, Ye.M., retsenzent, red.; SHEVYAKOV, M.N.,
retsenzent, red.; SHMAKOV, M.I., retsenzent, red.; ZHUK, S.Ya.
[deceased], akademik, glavnyy red.; RUSSO, G.A., kand. tekhn. nauk,
red.; FILIMONOV, N.A., red.; VOLKOV, L.N., red.; GRISHIN, M.M., red.;
ZHURIN, V.D., prof., doktor tekhn. nauk, red.; KOSTROV, I.N., red.;
LIKHACHEV, V.P., red.; MEDVEDEV, V.M., kand. tekhn. nauk, red.;
MIKHAYLOV, A.V., kand. tekhn. nauk, red.; PETROV, G.D., red.; RAZIN,
N.V., red.; SOBOLEV, V.P., red.; FERINGER, B.P., red.; FREYGOFER,

(Continued on next card)

ANDON'YEV, V.L.... (continued)   Card 3.
   Ye.F., red.; TSYPLAKOV, V.D. [deceased], red.; KORABLINOV, P.N.,
   tekhn. red.; GENKIN, Ye.M., tekhn. red.; KACHEROVSKIY, N.V., tekhn.
   red.

   [Volga-Don; technical account of the construction of the V.I. Lenin
   Volga-Don Navigation Canal, the TSimlyansk Hydroelectric Center,
   and irrigation systems] Volgo-Don; tekhnicheskii otchet o stroitel'-
   stve Volgo-Donskogo sudokhodnogo kanala imeni V.I. Lenina, TSim-
   lianskogo gidrouzla i orositel'nykh sooruzhenii, 1949-1952; v piati
   tomakh. Moskva, Gos. energ. izd-vo. Vol.1. [General structural
   descriptions] Obshchee opisanie sooruzhenii. Glav. red. S.IA. Zhuk.
   Red. toma M.M. Grishin. 1957. 319 p. Vol.2. [Organization of con-
   struction. Specialized operations in hydraulic engineering] Orga-
   nizatsiia stroitel'stva. Spetsial'nye gidrotekhnicheskie raboty.
                                (Continued on next card)

ANDON'YEV, V.L.... (continued)   Card 4.
    Glav. red. S. IA. Zhuk. Red. toma I.N. Kostrov. 1958. 319 p.
                                                (MIRA 11:9)
    1. Russia (1923-   U.S.S.R.) Ministerstvo elektrostantsii. Byuro
tekhnicheskogo otcheta o stroitel'stve Volgo-Dona. 2. Chlen-kor-
respondent Akademii nauk SSSR (for Akhutin). 3. Deystvitel'nyy
chlen Akademii stroitel'stva i arkhitektury SSSR (for Grishin,
Razin).
        (Volga Don Canal—Hydraulic engineering)

KOROTKOV, S.T.; SHEKHTER, R.I.

Methods of commercial oil and gas prospecting. Trudy VNII no.30:49-
75 '60.   (MIRA 14:2)
        (Petroleum geology)   (Gas, Natural—Geology)

SHIFFMAN, N.I. "BRACHOV, ... (Leningrad)

Towards a roundtalogy of field prospecting for the oil fields of the Lower-Kama region of the Tatar A.S.S.R. Trudy VNII neftegaz ... '65. (MIRA 18:6)

Shekhter, S.

USSR/Engineering - Equipment

Card 1/1   Pub. 103 - 27/29

Authors   :   Shekhter, S., and Chernitsyn, V.

Title   :   The universal gas-burner for casehardening pinion gears

Periodical :   Stan. i instr. 10, page 38, Oct 1954

Abstract   :   A description of the structure and operation of the universal gas-burner for casehardening pinion gears is presented, together with an illustration showing the installation of the above mentioned burner on a tool carrier. Diagram.

Institution :   ...

Submitted   :   ...

RABINOVICH, L.M.; SHEKHTER, S.L.

Developing basic patterns for the design of outerwear. Leh.
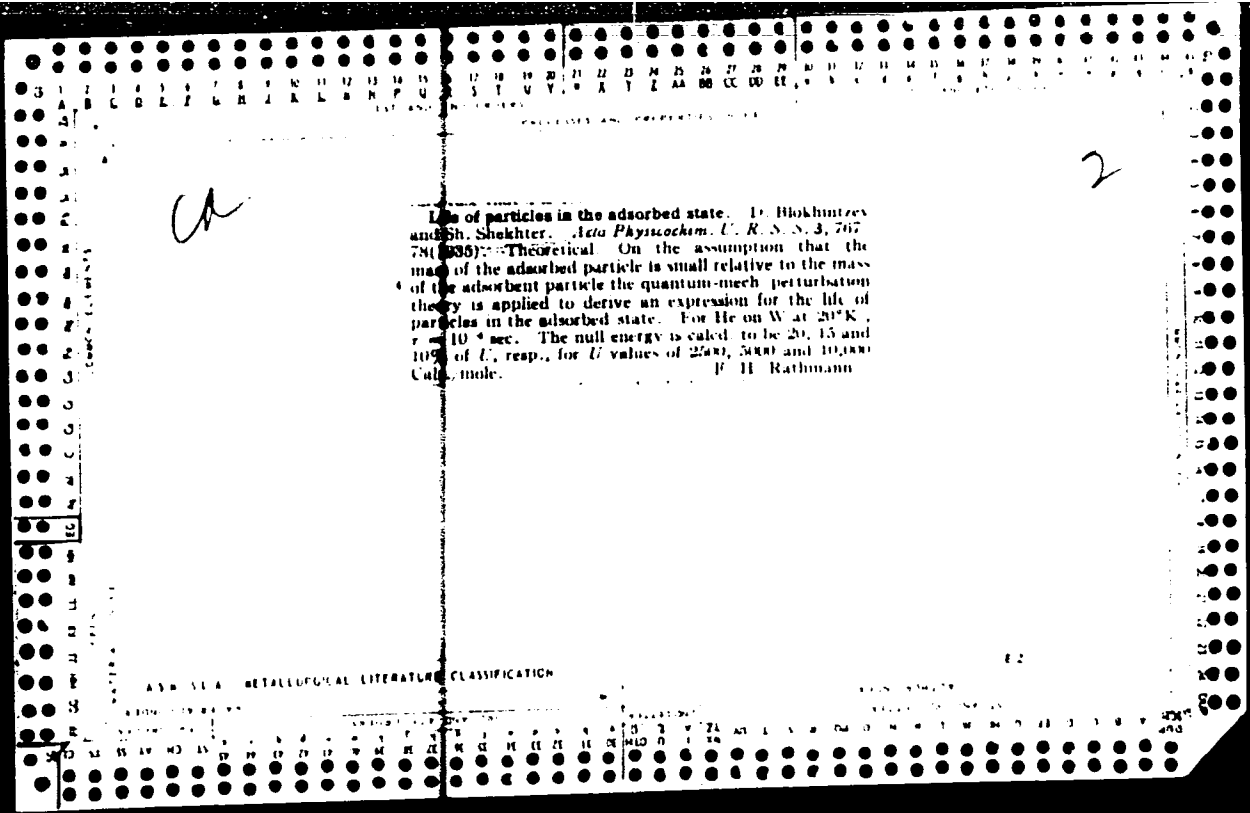prom. no.3:16-19 Jl-S '63.   (MIRA 16:11)
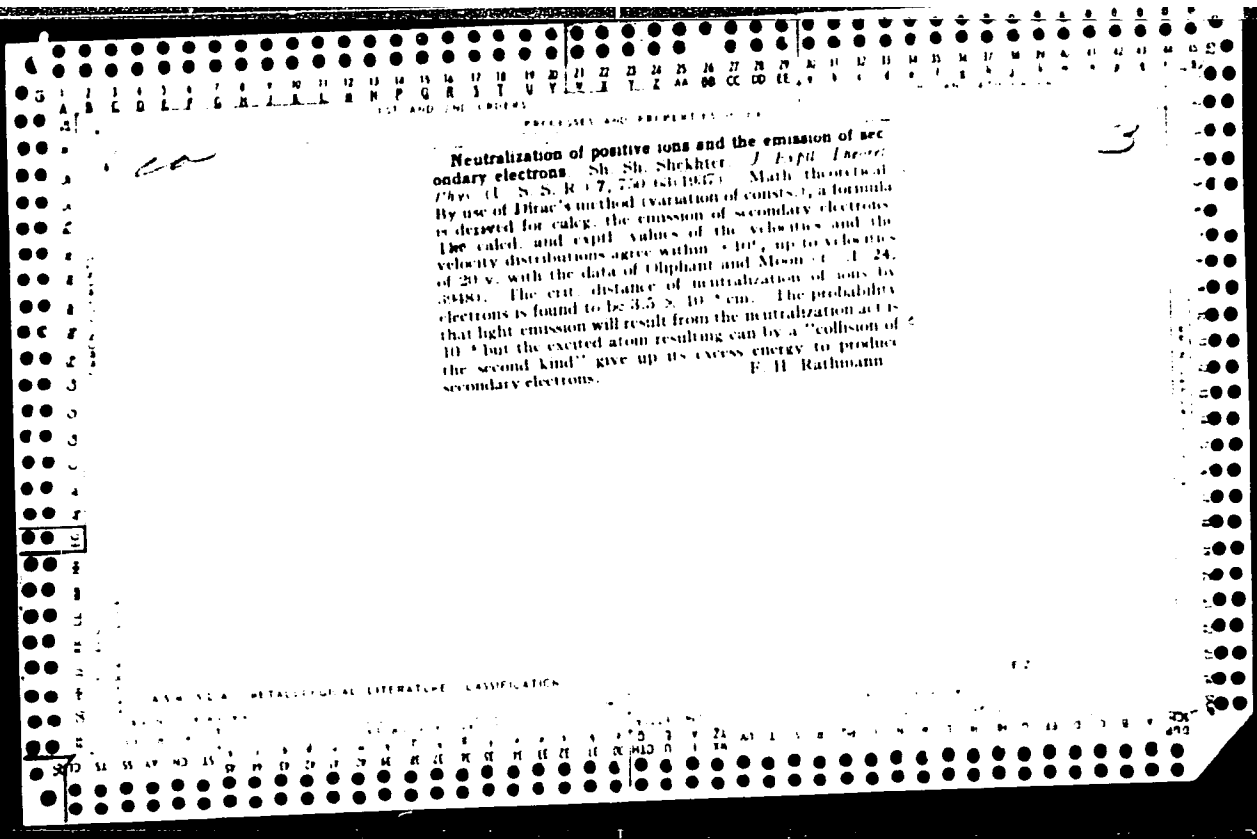
1. Chernovitskaya shveynaya fabrika No.1.

2

Quantum mechanical theory of adsorption. D. Blok-hintzev and Sh. Shekhter. *Uspekhi Khim.* (U.S.S.R.) , 589-600(1934).—A theoretical-math. review from the standpoint of the quantum-mech. intermol. forces as factors in adsorption processes. The theoretical adsorption potentials are compared with exptl. data for several cases.
F. H. Rathmann

Life of particles in the adsorbed state. P. Blokhintzev and Sh. Shekhter. Acta Physicochim. U.R.S.S. 3, 767-78(1935): Theoretical. On the assumption that the mass of the adsorbed particle is small relative to the mass of the adsorbent particle the quantum-mech. perturbation theory is applied to derive an expression for the life of particles in the adsorbed state. For He on W at 20°K, $\tau = 10^{-4}$ sec. The null energy is calcd. to be 20, 15 and 10% of U, resp., for U values of 2500, 5000 and 10,000 Cal./mole. — F. H. Rathmann

ASM STA METALLURGICAL LITERATURE CLASSIFICATION

Neutralization of positive ions and the emission of sec ondary electrons. Sh. Sh. Shekhter. *J. Expti. Theoret. Phys.* (U. S. S. R.) 7, 750 (sh 1937). Math. theoretical. By use of Dirac's method (variation of consts.), a formula is derived for calcg. the emission of secondary electrons. The calcd. and explt. values of the velocities and the velocity distributions agree within 5 hr, up to velocities of 20 v. with the data of Oliphant and Moon (C. A. 24, 3448). The crit. distance of neutralization of ions is found to be 3.5 × 10⁻⁸ cm. The probability that light emission will result from the neutralization act is 10⁻⁸ but the excited atom resulting can by a "collision of the second kind" give up its excess energy to produce secondary electrons.   F. H. Rathmann

, . .

"Oscillator with Friction in Quantum Mechanics" Ch. Zap. Saratovsk. un-ta,
    34, vypusk Fizicheskiy, 1954, 25-

Schroedinger's equation is solved for an oscillator with friction. The
Hamiltonian of classical mechanics is used to obtain the hamilton operator
and the wave equation. (RZhFiz, No 11, 1955)

130-1-13/17

AUTHORS: Shekhter, S.Ya. and Gorelov, V.P.

TITLE: Experience of the Automatic Metallisation of Strip-rolling Rolls (Opyt avtomaticheskoy naplavki listoprokatnykh valkov)

PERIODICAL: Metallurg, 1958, No.1, pp. 28 - 30 (USSR)

ABSTRACT: The renovation of large steel strip-rolling rolls by automatic metallization was first adopted in the Soviet Union at the imeni Voroshilov (imeni Voroshilova) Metallurgical Works with the active participation of the Institute of Electric Welding of the Ac.Sc. Ukrainian SSR (Institut elektrosvarki AN USSR) imeni Ye.O. Paton and the VNIIOchermet organisation. The authors describe the equipment used (Fig.1), capable of dealing with rolls up to 1 500 mm in diameter and up to 50 tons in weight, a type 1827C mill with two A-384 metallisation units. Rolls are preheated in inductors (Fig.2). Type ПП 3X2B8 sintered electrodes are used with manganese-free flux type AH-20. The authors give details of the metallisation and subsequent heat treatment of rolls. For rolls with a barrel length of 2 800 mm machine, time for depositing one layer is about 27 hours; with both units, the total time for depositing two layers of total thickness 5.2 mm is about 40 hours. Operating experience with metallised rolls showed that time between re-turning was approximately 16 hours instead of the 8 with

Card1/2

130-1-13/17
; Experience of the Automatic Metallisation of Strip-rolling Rolls

unmetallised rolls, the wear of the layer along a diameter
being 2.3 times less. The authors discuss some of the diffi-
culties encountered, such as disintegration of the surface
layer and bandingµ They give data showing the economic advan-
tages which have resulted from the adoption of metallisation.
Recently, the method has been successfully extended to the
roughing rolls of the two-high stand of the 2800 mill, the
original application being to the finishing rolls.
There are 2 figures.

ASSOCIATION: imeni Voroshilov Metallurgical Works (Metallurgicheskiy
               zavod im. Voroshilova)

AVAILABLE: Library of Congress
Card 2/2

SHEKHTER, S. Ia. (Ch. of Shop, Alchevsk Metallurgical Plant im. K. Ye. Voroshilov)
RYZHENKO, N. A., MAL'TSEV, N. A., PODGAYETSKIY, V. V.: POKHODNYA, I. K.,
SUBBOTOVSKIY, V. P. and GORELOV, V. P.

"Experience in the Introduction of Mechanized Surfacing in Metallurgy."
p. 115.

Vnedreniye novykh sposobov svarki v promyshlennost'; sbornik statey. vyp 3,
(Introduction of New Welding Methods in Industry; Collection of Articles, v. 3)
Kiev, Gos. Izd-vo tekhn. lit-ry Ukr SSR, 1960, 207pp.

(sponsoring Agency: Order Labor Red Banner Inst. Electro Welding im Ye O Paton,
This   AS Ukr SSR
    The articles deal with the combined experiences of the Inszt.Electric Welding im.
Ye. O. Paton and several industrial enterprises in solving scientifivc and engineering
problems in welding technology. Problems in the application of new methods of
mechanizdd welding and electroslag welding in industry are discussed.
This is the third collection of articles published under the same title.
The foreword was written by B. Ye. Paton, Academician of the Academy of Sciences
Ukr SSR.

S/125/60/000/009/012/017
A161/A130

AUTHOR: Shekhter, S.Ya.

TITLE: Automatic Bronze Coating of Steel Spindle Connection Blocks

PERIODICAL: Avtomaticheskaya svarka, 1960, No. 9, pp. 76-81

TEXT: A spindle connection block in the work roll drive of a two-high
"2800" sheet rolling mill requires 435 kg bronze, and more than 45 tons of
bronze are needed annually for the blocks of only two rolling mills at a
plant - a roughing and a sheet mill. To cut bronze consumption the Alchevsk
Metallurgical Plant im. K.Ye. Voroshilov has developed an automatic bronze
coating process. Institut elektrosvarki (Electric Welding Institute) assist-
ed. The essence of the new method is that a block (Fig. 1) is cast from
common Л-35 (L-35) steel, and its friction surfaces are coated with a 12-15
mm layer of aluminum bronze on special coating machines of the Electric
Welding Institute's (or IES) design (Fig. 6, photo). To prevent warping, a

Card 1/6

S/125/60/000/009/012/017
A161/A130

Automatic Bronze Coating of Steel Spindle Connection Blocks

coating is applied in sequence(illustrated in Fig. 3, 4 and 5) in three
layers. The steel casting is preheated by gas-air flame to 350-400°C. The
A-513 (A-513) welder and standard pressed 6 mm bronze wire, or 50 mm wide
1 mm bronze tape are used for the coating under AH-60 (AN-60) flux. Two
parallel connected PS-500 (PS-500) welding transformers are used to ensure
an even process. Aluminum bronze was chosen for its iron content (up to 4%)
improving mechanical properties (tin bronze contains up to 0.4% Fe only).
It takes 24 hours to coat one block. The coated blocks are cooled slowly in
a sand-filled case. The new method has brought a 65-70% economy of cast
bronze, and the automatically coated blocks have a better work quality than
cast bronze blocks and are easily restored by an automatic bronze coating.
The welding process details are included.

Electrode	amp	volt	Welding speed m/hr	Electrode feed, m/hr	Coating step, mm
Wire	850-900	32-35	20.0	83	8
Tape	750-800	32-35	15.7	75	25

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S/125/60/000/009/012/017
A161/A130

Automatic Bronze Coating of Steel Spindle Connection Blocks

Engineer V.P. Litvinenko and Technician A.I. Slavskiy took part in the development of the coating method. There are 6 figures.

ASSOCIATION: Alchevskiy metallurgicheskiy zavod im. K.Ye. Voroshilova
(Alchevsk Metallurgical Plant im. K.Ye. Voroshilov)

SUBMITTED: March 16, 1960

Рис. 1. Разрез стального сухаря, наплавленного бронзой:
1 — сухарь; 2 — слой бронзы.

Card 3/6

S/125/60/000/009/012/017
A161/A130

Automatic Bronze

Рис. 2. Разрез шпиндельного соединения в сборе:
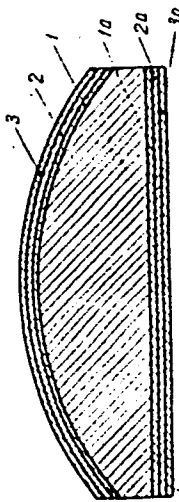1 — шпиндели; 2 — сухари; 3 — камень.

Card 4/6

Рис. 3. Порядок наплавки слоев бронзы:
1, 1а — первый слой; 2, 2а — второй слой; 3, 3а — третий слой.

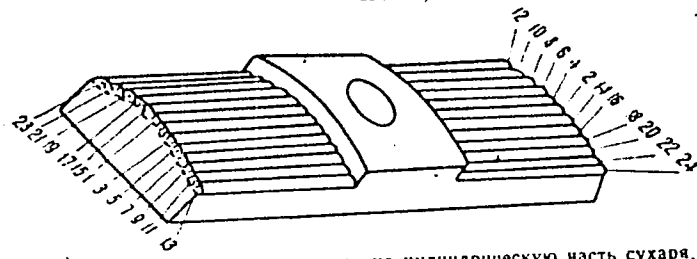S/125/60/000/009/012/017
A161/A130

Automatic Bronze Coating

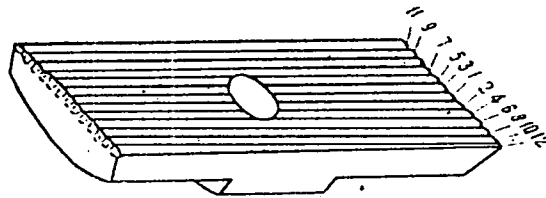Рис. 4. Порядок наплавки валиков на цилиндрическую часть сухаря.

Рис. 5. Порядок наплавки валиков на плоскую часть сухаря.

Card 5/6

S/125/60/000/009/012/017
A161/A130

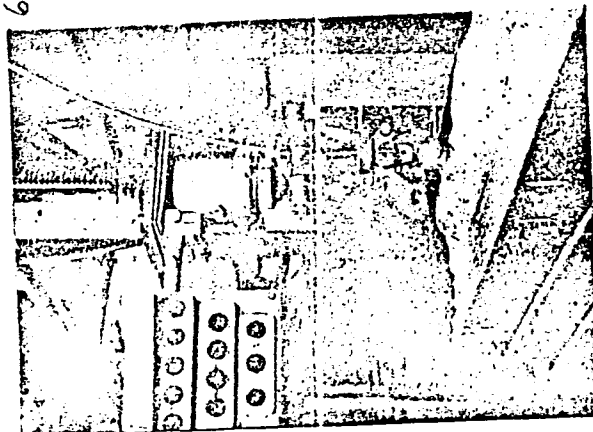Automatic Bronze Coating of Steel Spindle Connection Blocks

Рис. 6. Наплавка сухаря бронзовой прово-
локой Бр.АЖМц10—3—1,5.

Card 6/6

SHEKHTER, S.Ya.; ZADOROZHNYY, N.K.; AHRUNDZHE, V.M.

An 18 electrode unit for molten-slag arcless electric welding.   (MIRA 14:9)
Biul.tekh.-ekon.inform.   no.9:25-27   '61.
(Electric welding)

KHRUNDZHE, V.M.; SHEKHTER, S.Ya.

Electric slag welding of a conical crusher shaft. Avtom.svar.
15 no.5:72-77 My '62.   (MIRA 15:4)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki
imeni Ye.O.Patona AN USSR (for Khrundzhe). 2. Kommunarskiy
metallurgicheskiy zavod (for Shekhter).
 (Crushing machinery--Maintenance and repair) (Electric welding)

STERENBOGEN, Yu.A.; GRETSKIY, Yu.Ya.; KHORUNOV, V.F.; YANKELEVICH, G.I.
        SHEKHTER, S.Ya.

Technology of repairing cast iron molds. Avtom. svar. 15 no.6:
31-37 Je '62.   (MIRA 15:5)

1. Ordena Trudovogo Krasnogo Znameni Institut elektrosvarki
imeni Ye.O.Patona AN USSR (for Sterenbogen, Gretskiy, Khorunov).
2. Magnitogorskiy metallurgicheskiy kombinat (for Yankelevich).
3. Kommunarskiy metallurgicheskiy zavod (for Shekhter).
                (Ingot molds—Maintenance and repair)
                    (Cast iron—Welding)

SHEKHTER, S.Ya.

Mechanized hard facing of crane wheels at the Alchevsk
Metallurgical Plant. Avtom. svar. 15 no.3:73-78 Mr '62.
(MIRA 15:2)

1. Alchevskiy metallurgicheskiy zavod.
     (Voroshilovsk—Metallurgical Plants—Equipment and
                        supplies)
                   (Hard facing)

BRUK, A.D., inzh.; SHEKHTER, S.Ya., inzh.

    Wear of the rotors of agglomerate exhaust fans. Prom. energ.
    19 no.5:25-27   My '64.
                                     (MIRA 17:6)

KSENDZYK, G.V.; SHEKHTER, S.Ya.

Mechanized byildup welding of hammer crushing machine strikers
using a cast iron ribbon electrode. Avtom.svar. 17 no.1:75-77
Ja '64.
(MIRA 17:3)

1. Institut elektrosvarki imeni Patona AN UkrSSR (for Ksendzyk).
2. Kommunarskiy metallurgicheskiy zavod (for Shekhter).

SUSHCHUK-SLYUSARENKO, I.I.; KHRUNDZHE, V.M.; SHEKHTER, S.Ya.

Providing for the dimensional accuracy of cylindrical articles
during electric slag welding. Avtom. svar. 17 no.2:77-80   F '64.
                                                    (MIRA 17:9)

1. Institut elektrosvarki im. Ye.O. Patona AN UkrSSR (for Sushchuk-
Slyusarenko, Khrundzhe). 2. Kommunarskiy metallurgicheskiy zavod
(for Shekhter).

SHEKHTER, Semen Yakovlevich; PETRICHENKO, V.K., retsenzent

[Reconditioning equipment by mechanized build-up welding]
Vosstanovlenie oborudovaniia mekhanizirovannoi naplavkoi.
Moskva, Metallurgiia, 1965. 135 p.   (MIRA 18:4)

L 47451-66   EWP(e)/EWT(m)/EWP(t)/ETI/EWP(k)   IJP(c)   JD/WW/JG/AT/WH/JH

ACC NR: AP6014440   SOURCE CODE: UR/0125/65/000/012/0063/0065

AUTHORS: Shekhter, S. Ya.; Reznitskiy, A. M.; Panov, B. N.

ORG: /Shekhter, Reznitskiy/ Kommunarsk Metallurgical Plant (Kommunarskiy
metallurgicheskiy zavod); /Panov/ ORGRES

TITLE: Strengthening parts of metallurgical equipment by plasma deposition

SOURCE: Avtomaticheskaya svarka, no. 12, 1965, 63-65

TOPIC TAGS: plasma arc, metal deposition, welding equipment, aluminum oxide,
titanium dioxide, zirconium compound, tungsten carbide, chromium carbide, blast
furnace, rolling mill/ PS-500 welding equipment

ABSTRACT: A preliminary list of parts of metallurgical equipment to which protective
coatings are applied with a plasma arc is given as the blast and slag tuyeres of blast
furnaces, the baffle plates of blast tuyeres, the pipes of heating furnaces of rolling
mills, the working wheels of exhaust fans, the cases of thermocouples, and others.
The properties of powdered materials that have been selected for coatings are
discussed. The materials include aluminum oxide, titanium dioxide, zirconium oxide,
tungsten carbide, and chromium carbide. When argon-nitrogen mixtures and pure nitro-
gen are used, the arc voltage must be not less than 80 V at 300 A. The voltage is
supplied by two series-connected PS-500 welding transformers. Proper selection of the
coating material insures high mechanical strength of the bond of the coating with the
part and increased density of the protective layer.

SUB CODE: 11, 13/ SUBM DATE: 07May65/ ORIG REF: 004/ OTH REF: 002

L 5019-66   EWT(m)/EWP(t)/EWP(k)/EWP(b)/EWA(c)   JD/HW

ACC NR: AP5022041   SOURCE CODE: UR/0286/65/000/014/0113/0113

AUTHORS: Paton, B. Ya.; Dudko, D. A.; Medovar, B. I.; Khrundzhe, V. M.;
Litsyuk-Chudin, V. A.; Sayenko, V. Ya.; Dryapik, Ye. P.; Snekhter, S. Ya.;
Salov, Ye. M.; Baranov, S. V.

ORG: none

TITLE: A method for obtaining two-layer rolling. Class 49, No. 173115 /Institute
of Electric Welding im. Ye. O. Paton, AN UkrSSR (Institut elektrosvarki AN UkrSSR)7

SOURCE: Byulleten' izobreteniy i tovarnykh znakov, no. 14, 1965, 113

TOPIC TAGS: metal rolling, metal cladding, metal industry

ABSTRACT: This Author Certificate presents a method for obtaining two-layer
rolling by lining a plate ingot with a solid plate. To produce proper adhesion
between the layers, the plate ingot is lined with a plate of cladding metal to
which is welded a plate of metal analogous in composition to the one being lined.

SUB CODE: IE, MM/   SUBM DATE: 04Jul63/   ORIG REF: 000/   OTH REF: 000

Card 1/1   070107.23   UDC: 621.771.8

SHEKHTER, S.Ya.; REZNITSKIY, A.M.; PIKULIN, S.A.; KHOMENKO, K.M.

Automatic welding of oversize, steel pouring ladles. Avtom.svar.
18 no.1:59-60 Ja '65.   (MIRA 18:3)

1. Kommunarskiy metallurgicheskiy zavod (for Shekhter, Reznitskiy,
Pikulin). 2. Institut elektrosvarki im. Ye.O.Patona AN UkrSSR (for
Khomenko).

YAROSHEVSKIY, A.Ya., prof.; SHEKHTER, S.Yu.

Hemopoietins (erythropoietins) of the plasma; survey of foreign literature. Probl.gemat. i perel.krovi 4 no.3:41-48 Mr '59.
(MIRA 12:6)

1. Iz kliniki propedevticheskoy terapii (zav. - deystvitel'nyy chlen AMN SSSR prof.M.D.Tushinskiy) I Leningradskogo meditsin-skogo instituta imeni akad.I.P.Pavlova.
(ERYTHROCYTES
erythropoietin, review (Rus))

YAROSHEVSKIY, A.Ya., prof.; SHEKHTER, S.Yu.

Effect on erythropoiesis of sera from anemic patients. Probl. gemat. i perel.krovi 4 no.4:17-24 Ap '59.   (MIRA 12:6)

1. Iz propedevticheskoy terapevticheskoy kliniki (zav. -
deystvitel'nyy chlen AMN SSSR M.D.Tushinskiy) I Leningradskogo
meditsinskogo instituta i laboratorii krovoobrashcheniya (zav. -
prof.G.P.Konradi) Instituta fiziologii imeni I.P.Pavlova AN SSSR.
         (ANEMIA, blood in,
               eff. of blood serum from anemic patients on
               erythrocyte count in rabbits (Rus))
         (ERYTHROCYTES,
               count in rabbits, eff. of blood serum from
               anemic patients (Rus))

SHEKHTER, S.Yu.; YAROSHEVSKIY, A.Ya.

Effect of sera from normal subjects and anemic patients on erythro-
poiesis. Report No.1: Effect of the administration of serum on blood
and bone marrow composition. Biul.eksp.biol. i med. 48 no.10:23-27
O '59.   (MIRA 13:2)

1. Iz laboratorii fiziologii krovoobrashcheniya (zav. - prof. G.P.
Konradi) Instituta fiziologii imeni I.P. Pavlova AN SSSR i kliniki
propedevtiki vnutrennikh bolezney (zav. - deystvitel'nym chlenom
AMN SSSR M.D. Tushinskim.
          (ANEMIA blood)
          (BLOOD CELLS)

SHEKHTER, S.Yu.

Influence of the serum of healthy and anemic subjects on erythropoiesis.
Report no.2: Nature and mechanism of the erythropoietic action of
serum. Biul. eksp. biol. i med. 49 no.1:39-42 Ja '60.
(MIRA 13:7)

1. Iz laboratorii fiziologii krovoobrashcheniya i dykhaniya (zav.-
prof. G.P.Kondradi) Instituta fiziologii imeni I.P.Pavlova AN SSSR
i kliniki propedevticheskoy terapii (zav. - deystv. chlen AMN SSSR
M.D.Tushinskiy) I Leningradskogo meditsinskogo instituta im. I.P.
Pavlova. Predstavlena deystv. chlenom AMN SSSR V.N. Chernigovskim.
(SERUM—PHYSIOLOGICAL EFFECT)   (ERYTHROCYTES)

SHEKHTER, S. Yu.

Erythropoietic properties of sera in patients with iron-deficient
gastroenterogenic anemia. Probl. gemat. i perel. krovi no.12:
17-21 '61.   (MIRA 15:6)

1. Iz laboratorii obshchey fiziologii (zav. - akad. V. N.
Chernigovskiy) i terapevticheskogo sektora (zav. - prof. A. Ya.
Yaroshevskiy) Instituta fiziologii imeni I. P. Pavlova AN SSSR.

(ANEMIA)   (SERUM)

MOISEYEVA, O.I.; SHEKHTER, S.Yu.

Study of serum erythropoietins by the method of bone marrow culture.
Probl. gemat. i perel. krovi 8 no.7:12-17 Jl '63.

(MIRA 17:10)

1. Iz terapevticheskogo sektora (zav. -prof. A.Ya. Yaroshevskiy) Instituta fiziologii imeni akademika Pavlova (dir. -akademika V.N. Chernogovskiy) AN SSSR.

ARUTYUNYAN, R.A.; SHEKHTER, S.Yu.

Comparative study of the erythropoietic activity of plasma in vitro and in vivo. Biul. eksp. biol. i med. 57 no.6:23-25 Je '64.

(MIRA 18:4)

1. Laboratoriya obshchey fiziologii (zav. - akademik V.N. Chernigovskiy), laboratoriya klinicheskoy i eksperimental'noy gematologii (zav. - prof. A.Ya.Yaroshevskiy) Instituta fiziologii imeni Pavlova AN SSSR, Leningrad, i Yerevanskiy sektor radiobiologii (zav. - prof. S.A.Papoyan) AMN SSSR.

YARCOREVSKII, A. Yu.; MOLCHTEVA, O. I.; CLEMETER, C. Yu.

"On interrelation of the factors of plasma stimulating and inhibiting the erythropoiesis."

report submitted to 10th Cong, Intl Society of Hematology, Stockholm, Sweden, 30 Aug-4 Sep 64.

Central Hospital, Min of Transport, Moscow.

YAROSHEVSKIY, A. Ya.; MOISEYEVA, O. I.; SHEKHTER, S. Yu.

"On the interrelation of the factors of plasma stimulated and inhibiting the erythropoiesis."

report submitted to 10th Cong of Intl Soc of Hematology, Stockholm, 30 Aug-4 Sep 64.

Pavlov Inst of Physiology, Leningrad.

(MIRA 18:6)

... in the form of suspension for the study
... erythropoietic activity of the plasma, a description of the
... Mr-Ap
(MIRA 18:?)

... ya kliniceskoy i eksperimental'noj gematologii (zav. -
... sherevskiy) Instituta fiziologii imeni Pavlova (dir. -
... K. Chernigovskiy) AN SSSR, Leningrad.

SMOTRICH, Ye.P.; SHEKHTER, V.I.

The OS-157-type specialized machine. Biul.tekh.-ekon.inform.
no.5:35-37 '59. (MIRA 12:8)
(Drilling and boring machinery)

SHEKHTER, V.I.

The OS-177 machine tool for fine boring of crankcase housings.
Biul.tekh.-ekon.inform. no.2:20-22 '60.   (MIRA 13:6)
(Drilling and boring machinery)

SHEKHTER, V.I.
    The 58A712 four-spindle diamond boring machine. Biul.
tekh.-ekon.inform. no.3:23-25   '60.   (MIRA 13:6)
        (Drilling and boring machinery)

S/193/60/000/004/004/006
A004/A001

AUTHOR: Shekhter, V.I.

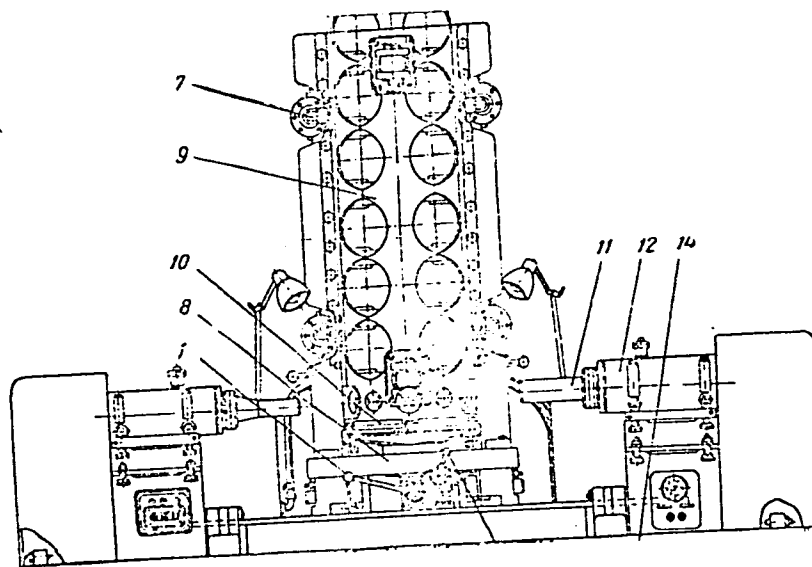TITLE: The OS-204 (OS-204) Two-Spindle Diamond Boring Machine

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, 1960, No. 4, pp. 23 - 25

TEXT: In 1959 a special two-spindle diamond boring machine was manufactured by the Odesskiy zavod radial'no-sverlil'nykh stankov (Odessa Radial Drilling Machine Plant). The machine has been developed by the spetsial'noye konstruktorskoye byuro No. 3 (Special Design Office No. 3) and is intended for the boring of six-star-positioned holes and four other holes in engine top gear cases. In contrast to ordinary diamond boring machines the OS-204 model has a swivel table, making it possible to bore star-positioned holes, i.e. holes whose axes meet in one point. The component being machined is made of A. -4 (AL-4) aluminum alloy and has a length of 1,544 mm. The principal units of the OS-204 diamond boring machine are shown in the figure.

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The 𝒪𝒮-204 (OS-204) Two-Spindle Diamond Boring
Machine
Figure:

S/193/60/000/004/004/006
A004/A001

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A004/A001

The OC -204 (OS-204) Two-Spindle Diamond Boring Machine

Figure: 1 - handle for clamping the table and getting out the locator; 2 - control cock handle of the cylinders for the clamping and unclamping of the component being machined; 3 - speed control handle of the working feed when table travels to the right; 4 - speed control handle of the working feed when table travels to the left; 5 - table "Reverse" handle; 6 - table "Start - Stop" handle; 7 - cylinders for the clamping and unclamping of the component being machined; 8 - fixture swivel table; 9 - component being machined; 10 - roll train; 11 - boring bars; 12 - spindle heads; 13 - hydraulic panel; 14 - table travel hydrocylinder; 15 - bed, table, stocks.
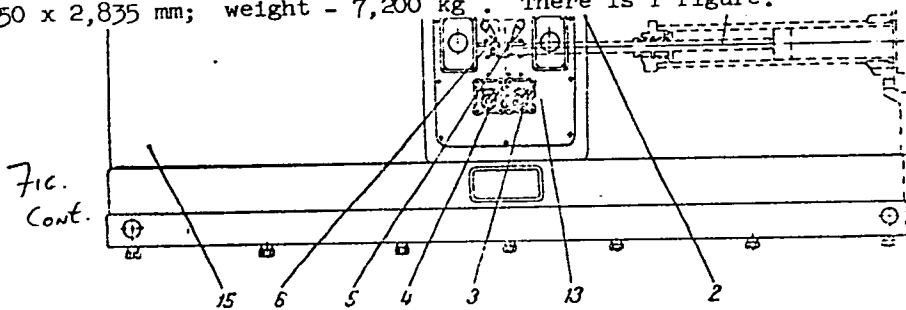
The OS-204 machine is a semi-automatic for mass or big-lot production. After the component being machined has been set in the fixture the working cycle is taking place fully automated. Each of the spindles is mounted on two pairs of class C (S) preloaded duplex radial thrust ball bearings. The table travels on one flat and one prismatic bedway. and carries the swivel fixture. The component being machined rests on a corner iron with the aid of two diamond-shaped dowels. The component is set in the boring direction by turning and indexing the swivel table. The table is equipped with spring-mounted support rollers. The spring-mounted

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S/193/60/000/004/004/006

The ОС -204 (OS-204) Two-Spindle Diamond Boring Machine   A004/A001

roll train on the swivel table facilitates the setting of the component being
machined on the dowels. The OS-204 is hydraulically operated. The hydraulic
assembly with the drive electromotor of the hydropump is mounted on the cover
of the hydraulic tank. The correct sequence of operation cycle of the machine
is ensured by blocking devices. The cutting tools are set on the required boring
diameter by indexing devices. The following technical specifications are given:
boring diameter - 83A/82A, 68A/67A; boring length - 107 and 186 mm; machine
capacity - 3 components/hour; cutting speed of tools of the left and right
boring bar - 380 and 370 m/min; feed - 0.08 mm/rev; power of electromotors of
the spindle head rotation - 2.8 kw; overall dimensions (length x width x height) -
2,900 x 1,450 x 2,835 mm; weight - 7,200 kg . There is 1 figure.

Fic.
Cont.

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SHEKHTER, V.I.

The OS-126 jig boring machine. Biul.tekh.-ekon.inform. no.5:27-29 '60.
(MIRA 14:3)

(Drilling and boring machinery)

84620

S/117/60/000/007/011/012/XX
A004/A001

1.5000 also 1045

AUTHOR: Shekhter, V.I.

TITLE: A Fixture for the Diamond Boring of Bearing Bushes

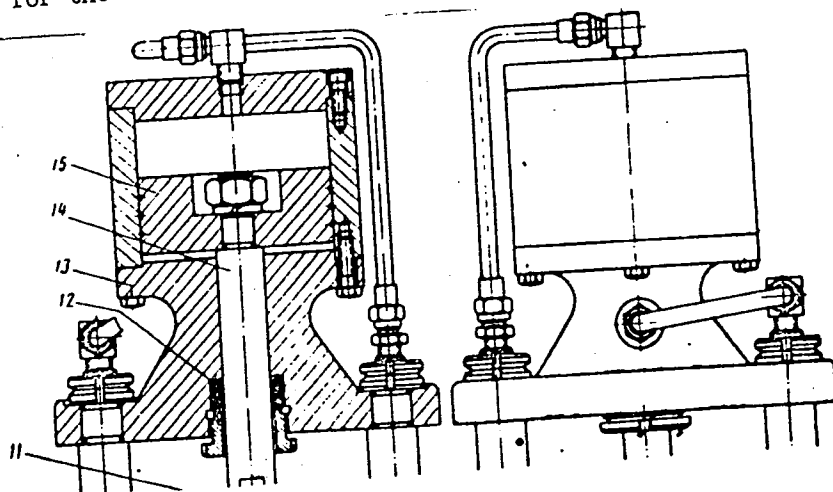PERIODICAL: Mashinostroitel', 1960, No.7, pp. 25-26

TEXT: The author gives a description of a two-position fixture designed and manufactured by the Odesskiy zavod radial'no-sverlil'nykh stankov (Odessa Radial Drilling Machine Plant). This fixture is mounted on the 2A710 double-spindle diamond boring machine and ensures the precision-machining of tractor engine bearing bushes. To warrant a constant clamping stress on the bushes, the fixture for rough and finish machining is equipped with calibrated hydraulic clamping units, clamping the bushes by their two face ends. The boring machine equipped with this fixture operates in a semi-automatic cycle. The operator only puts in the workpieces to be machined, turns the handle of the hydraulic cylinder control cock and switches on the table travel handle. All further operations are effected automatically by the machine. Figure 1 shows the design of the new fixture: 1 = body with four columns 5 which carry the flanges 13 with the hydraulic cylinders. The rods 14 of the pistons 15 are sealed by the rings 12.
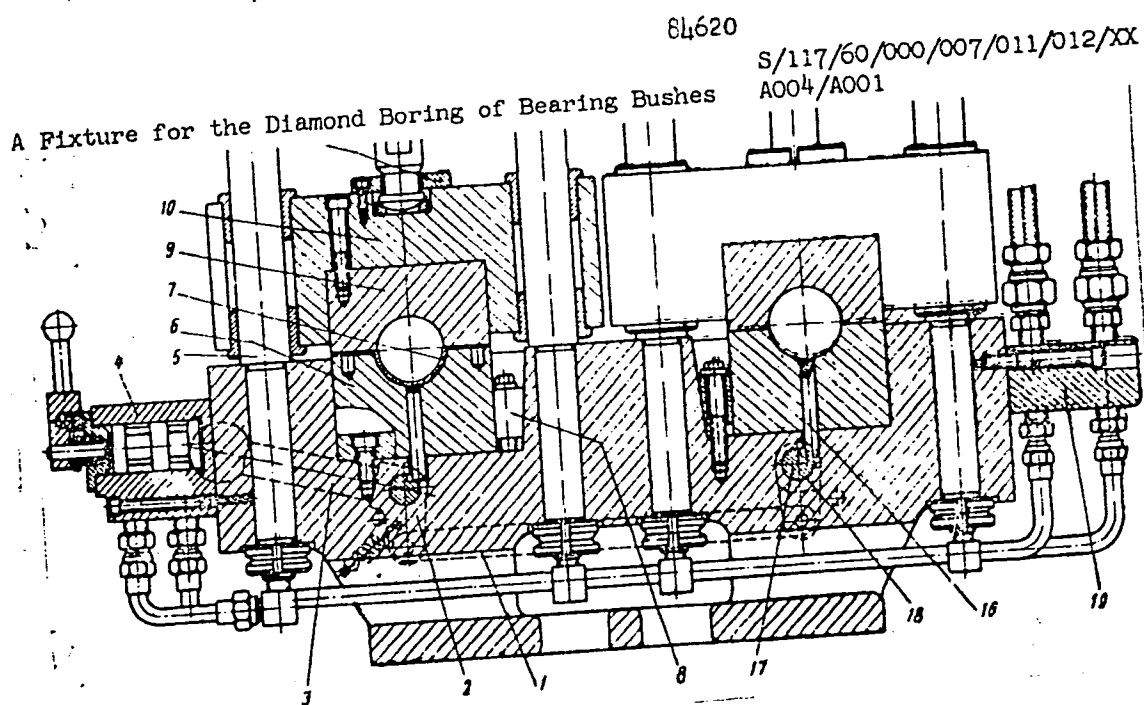
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A004/A001

A Fixture for the Diamond Boring of Bearing Bushes

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A004/A001

A Fixture for the Diamond Boring of Bearing Bushes

Рис. 1.

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A004/A001

A Fixture for the Diamond Boring of Bearing Bushes

With the aid of the semi-rings 11 the lower rod journals are connected to the
slide blocks 10. Since the slide blocks have the possibility to swing relative
to the spherical rod ends, the clamping units 9 are automatically adjusted by
the face ends of the bearing bushes. The clamping units 9 are interchangeable
so that also bushes of other dimensions can be clamped. The machined bushes are
removed by the pushers 16. The hydraulic layout of the fixture is shown in
Figure 2. Under a pressure of 10 - 15 kg/cm^2 oil from the hydraulic system of
the machine tool enters the dual collector 19 and proceeds further to the reduc-
ing valves where it is reduced to the necessary pressure, and then directed to
the two-position dual cock 4 which distributes the oil over the cylinder hollows.
The reducing valve makes it possible to control the magnitude of the tightening
stress in the range of 200 - 3,500 kg, which is necessary for the machining of
bushes of different rigidity. Figure 3 shows the tool holder with the two car-
bide tools 2 and 3, of which the former is designated for finish and the latter
for rough machining. Setting and clamping of the tools is effected by the screws
10 and 9. Boring takes place at a cutting speed of about 400 m/min, with a
feed of 0.24 mm/rev for rough work and 0.05 mm/rev during finish operations.
The machine tool has a capacity of approximately 100 bimetallic (steel and ACM
-ASM- alloy) bearing bushes per hour. The author points out that diesel locomo-

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S/117/60/000/007/011/012/XX
A004/A001

A Fixture for the Diamond Boring of Bearing Bushes

Figure 2

tive bearing bushes are also bored on
the special OC-188 (OS-188) horizontal
two-spindle diamond boring machine
equipped with a four-position fixture
fitted with calibrated hydraulic clamp-
ing units. This machine possesses a
capacity of 16 bushes per hour. One
machine of this type results in savings
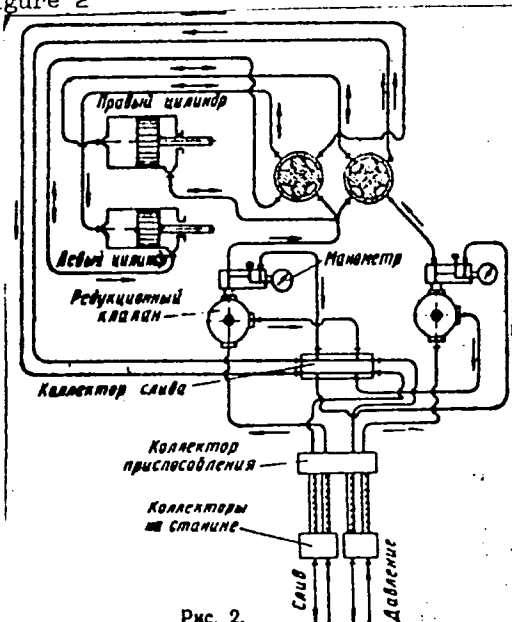of approximately 400,000 rubles per year.

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Рис. 2.

84620

S/117/60/000/007/011/012/XX
A004/A001

A Fixture for the Diamond Boring of Bearing Bushes
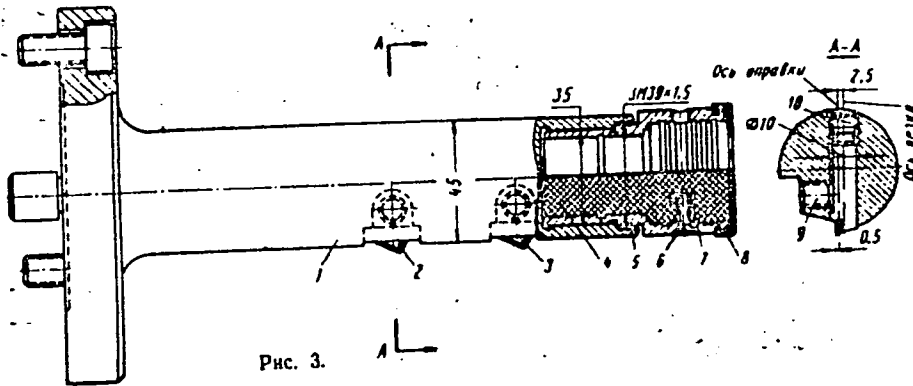
Figure 3

Рис. 3.

There are 3 figures.

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S/193/60/000/008/005/018
A004/A001

The Horizontal OC-232 (OS-232) Diamond Boring Machine

(see illustration).

Figure:
1 - bed; 2 - slides; 3 - boring heads; 4 - control panel; 5 - panel of the
working feed throttles; 6 - hydraulic cylinders for the slide travel; 7 - reducer;
8 - component clamping fixture; 9 - control cocks of hydraulic cylinders of
component clamping; 10 - hydraulic drive.
The OS-232 machine is a semi-automatic with automatic working cycle. The components
being machined are set and removed by hand. The bed is composed of three parts,
two side beds and a central pedestal, fastened to each other by bolts and pins.
The slides with mounted boring heads are traveling on the bedways of the side beds.
The pedestal carries a two-position fixture on which the components being machined
are set. Cam-actuated travel switches act on hydraulic devices which carry out
the rapid and working motions of the slides. The spindle heads are composed of
two parts, the body of the driving shaft and the sleeve fastened to it, which
carry the spindle mounted in precision annular supporting ball bearings. The
component-clamping fixture is fitted on the top surface of the pedestal. The
components being machined are centered and clamped with the aid of rings located
on clamping plates. The boring dimensions are indexed on calibrated gages located
on the spindle sleeves and are transmitted to the tools by a prism with indicator.

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The Horizontal OC-232 (OS-232) Diamond Boring Machine

S/193/60/000/008/005/018
A004/A001

(see illustration).

Figure:
1 - bed; 2 - slides; 3 - boring heads; 4 - control panel; 5 - panel of the working feed throttles; 6 - hydraulic cylinders for the slide travel; 7 - reducer; 8 - component clamping fixture; 9 - control cocks of hydraulic cylinders of component clamping; 10 - hydraulic drive.

The OS-232 machine is a semi-automatic with automatic working cycle. The components being machined are set and removed by hand. The bed is composed of three parts, two side beds and a central pedestal, fastened to each other by bolts and pins. The slides with mounted boring heads are traveling on the bedways of the side beds. The pedestal carries a two-position fixture on which the components being machined are set. Cam-actuated travel switches act on hydraulic devices which carry out the rapid and working motions of the slides. The spindle heads are composed of two parts, the body of the driving shaft and the sleeve fastened to it, which carry the spindle mounted in precision annular supporting ball bearings. The component-clamping fixture is fitted on the top surface of the pedestal. The components being machined are centered and clamped with the aid of rings located on clamping plates. The boring dimensions are indexed on calibrated gages located on the spindle sleeves and are transmitted to the tools by a prism with indicator.

Card 2/3

SHEKHTER, V.I.

Rings for boring bushings. Mashinostroitel' no.9:27 S '60.
(MIRA 13:9)

(Drilling and boring machinery—Attachments)

AUTHOR: Shekhter, V. I.

TITLE: The Special-Purpose Vertical OC-256 (OS-256) Diamond Boring Machine

PERIODICAL: Byulleten' tekhniko-ekonomicheskoy informatsii, 1960, No. 12, pp.24-25

TEXT: The Odesskiy zavod radial'no-sverlil'nykh stankov (Odessa Radial Drilling Machine Plant) has manufactured a new boring machine, designed by the spetsial'noye konstruktorskoye byuro No. 3 (Special Design Office No. 3). The OS-256 boring machine is intended for the precision boring of holes in engine cylinder-block jackets. A total of six stepped holes is machined in couples on the boring machine. Each hole is bored up to 194 mm in diameter over a length of 54 mm; up to 195 mm in diameter over a length of 14 mm; tapered to a diameter of 207.5 A_4 (?) over a length of 6.2 mm, and chamfered 1.5 x 45° on 195 mm in diameter. The illustration shows the design of the OS-256 boring machine.

Figure 1:
1 - bedplate; 2 - column; 3 - slides; 4 - spindle heads; 5 - fixture; 6 - hydraulic panel; 7 - boring bar; 8 - component-clamping levers.

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S/193/60/0C_/012/008/018
A004/A001

The Special-Purpose Vertical OC-256 (OS-256) Diamond Boring Machine

The boring machine is of
vertical design which
ensures a good flowing-
off of the chips from
the cutters and excludes
the possibility of the
buckling boring bar
affecting the precision
of the component being
machined. The part
being machined is adjust-
ed in the fixture and
clamped with the aid of
hydraulic cylinders.
The whole boring cycle
is automated, i. e. the
following operations are
effected automatically,

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A004/A001

The Special-Purpose Vertical OC-256 (OS-256) Diamond Boring Machine

while the table with the clamped part takes up the extreme left position: fast
slide approach, switching on of the rotary spindle motion, changing to fast rota-
tion, working feed, low working feed (undercutting, pointing, chamfering), auto-
matic reversing with simultaneous braking of the spindle, accelerated upward travel
of the slides with the spindles, their smooth adjustment to the upper position of
the working feed, and stop. Then the table is moved into the medium position and
the whole cycle is repeated to tool the second pair of holes, after which the
table moves into the right position to machine the third pair of holes. The
operation being finished, the table returns into the initial left position, where
the machined part is exchanged for an unmachined one. The fast table travel with
smooth approach to the machining position is effected with the aid of hydraulic
cylinders. The spindles of the boring heads are mounted on superprecision bear-
ings of the "C" ("S") class. Each boring bar is fitted with six diametrically
placed cutting tools. The rough and finish tools operate simultaneously in such
a way that the roughing tool is advanced relatively to the finishing tool by some
tenths of a millimeter and located somewhat lower relative to the boring diameter.
The setting of the tools is effected by a special indicator gage. The author

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3/193/60/000/012/008/018
A004/A001

The Special-Purpose Vertical OC-256 (05-256) Diamond Boring Machine

presents the following technical data: maximum slide travel - 400 mm; range of
slide working feed - 10 - 500 mm/min; table travel (general - 420 mm; power of
spindle drive - 2 8 kw, overall dimensions (length x width x height) - 2,200 x
2,510 x 4,000 mm, weight - 11 tons. It is reported that this new boring machine
resulted in annual savings of 318,945 rubles. There is a figure.

Card 4/4

SHEKHTER, V.I.

Devices for preventing the breaking of drills in deep drilling.
Stan. i instr. 31 no.5:35-36 My '60.   (MIRA 14:5)
(Drilling and boring--Safety measures)

SHEKHTER, V.I.

The OS-314 special diamond boring machine. Biul.tekh.-ekon.
inform. no.3:28-30 '61.   (MIRA 14:3)
            (Drilling and boring machinery)

SHEKHTER, V.I.

The OS-290 machine for deep drilling and counterboring. Biul.
tekh.-ekon.inform. no.8:47-49 '61. (MIRA 14:8)
(Drilling and boring machinery)

SHEKHTER, V.I.

The OS-289 movable radial drilling machine. Biul.tekh.ekon.inform.
(MIRA 14:9)
no.9:39-41 '61.
(Drilling and boring machinery)

SHEKHTER, V.I., inzh.; KORDYSH, L.M., inzh.

Attachments for diamond boring machines. Mashinostroenie no.2:
23-28 Mr-Ap '62.   (MIRA 15:4)

1. Odesskiy zavod radial'no-sverlil'nykh stankov.
          (Drilling and boring machinery--Attachments)

SHEKHTER, V.I.

The OS-277 semiautomatic machine for finish (diamond) turning
and undercutting of pistons. Biul.tekh.-ekon.inform. no.2:
22-24 '62. (MIRA 15:3)

(Machine tools)

SHEKHTER, V.I.

The OS-300 special purpose inclined six-spindle diamond boring machine. Biul.tekh.-ekon.inform.Gos.nauch.-issl.inst.nauch.i tekh.inform. no.3:24-26 '62. (MIRA 15:5)
(Drilling and boring machinery)

SHEYNMAN, ...Ya. (Sevastopol'); IF MATER, V.I. (...)

...se of a reversible generator-motor (...) ... ... converter for raising the quality of electric power of an autonomous system. Izv. AN SSTR. Energ. i transp. no.2:89-191 JI-Ag '...

(MIRA 17:10)

SHEYNMAN, Lev Yefimovich, starshiy prepodavatel'; SHEKHTER, Vil'yam
Leonidovich, inzh.; GOLOVANOV, Robert Dmitreyevich, inzh.;
SHUMSKIY, Vladislav Vasil'yevich, inzh.

Automatic drop of reactive power in a mechanical current converter.
Izv. vys. ucheb. zav.; elektromekh. 6 no.10:1249-1252   '63.
(MIRA 17:1)

Schter, V. On a system of positive integrals of Maxwell's equations. Doklady Akad. Nauk SSSR (N.S.) 89, 619-622 (1953). (Russian)

For an electromagnetic field in an empty finite region Ω bounded by a perfectly conducting surface S the author considers sets of positive quadratic functionals which are constant in time. For integral $k \geqq 2$ a set is termed complete if the boundedness of the functionals implies the boundedness in the mean square of the spatial partial derivatives of the field of orders from zero to k. It is shown, with differentiability restrictions on S, that the set

$$\int_\Omega [(\partial^m E/\partial t^m)^2 + (\partial^m H/\partial t^m)^2]\,d\Omega, \quad m = 0, \cdots, k,$$

is complete. A more special result had been given by D. M. Vollov [see the paper reviewed above].

F. V. Atkinson (Ibadan).

SHEKHTER, V.M.

    Univalence of the mass tensor in the theory of relativity. Vest.Len.
un. 9 no.11:99-112 N '54.   (MLRA 8:7)
        (Relativity (Physics))

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Vest. Leningrad U., Ser. Fiz. i Khim., no. 1, 1950, p. 23

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              (Hydrodynamics)

SHEKTER, V.M., KOMAR, E.G., MONOSZON, N.A., STOLOV, A.M., TITOV, V. A.

"Experimental Ring-Shaped 200-650 MeV Stong-Focusing Proton Accelerator," paper presented at CERN Symposium, 1956, appearing in Nuclear Instruments, No. 1, pp. 21-30, 1957

SHEKHTER. V. M.

56-1-52/56

AUTHOR: Shekhter, V. M.

TITLE: On the Scattering of a Neutrino on an Electron (O rasseyanii ney-
            trino na elektrone)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34,
            Nr 1, pp. 257 - 258 (USSR)

ABSTRACT: The development of the experimental technique which permits the
            determination of cross sections of the order of magnitude from
            10^{-44} to 10^{-45} cm2 (in absorption of a neutrino by protons or in
            Cl^{37}) gives rise to the hope that the experiments of the discovery
            of the scattering of a neutrino on an electron will be repeated
            in the near future. Reference is made to papers dealing with the
            same subject. The aim of the present report is to indicate the
            possibility of the existence of ν-e-scattering due to a direct
            4-fermion interaction ee $\nu\nu$. The cross section of such a scatter-
            ing may be of the same order of magnitude or even higher than σ_μ.
            The cross section of the scattering is here first written down for
            the case that the impinging neutrino has the energy E and the re-
            coil electron the energy W. The total cross section is obtained
            by averaging over the energy spectrum $\rho(E)$ of the impinging
            neutrino. An explicit expression for the total cross section is

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also written down here. When the usual value of $g = 3.10^{-49} erg.cm^3$ for 4-fermion interactions is assumed, the value $\sigma_f = 3,5.10^{-45} cm^2$ is found for the total cross section. This value is 5 times higher than the cross section $\sigma_\mu = 7,5.10^{-46} cm^2$. An interaction of the type investigated here will generally also exist in the case of the scattering of a neutrino on a nucleon. On this occasion the first-mentioned formula remains valid and leads to a cross section of about the same order of magnitude. But the effect of the γ-n-scattering and of the γ-p-scattering can practically not be observed due to the small recoil energy of the nucleon. There are 5 references, none of which is Slavic.

ASSOCIATION: **Leningrad Physical-Technical Institute**
(Leningradskiy fiziko-tekhnicheskiy institut)

SUBMITTED: October 29, 1957

AVAILABLE: Library of Congress

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SOV/56-34-3-42/55

AUTHORS: Ansel'm, A. A. , Shekhter, V. M.

TITLE: On a Possible Asymmetry of the Particles and Antiparticles in Weak Interactions (O vozmozhnoy nesimmetrii chastits i antichastits v slabykh vzaimodeystviyakh)

PERIODICAL: Zhurnal Eksperimental'noy i Teoreticheskoy Fiziki, 1958, Vol. 34, Nr 3, pp. 761 - 762 (USSR)

ABSTRACT: The latest experimental data on the $\beta-\gamma$-correlation show that the positron decay processes of Ne^{19} and A^{35} can be explained by a mixture of the A- and V-variants of β-interaction, while the electron decays of He^6 and of the free neutrons are dependent on the T- and obviously on the S-variant. In the positron decay of Co^{58} the experiments analogously show a weak interference of the Fermi interaction and the Gamov-Teller interaction, while this interference is very great in the electron decay of Au^{198} and Sc^{46}. When all these experiments are looked upon as correct these facts sharply contradict the present theory. When various processes are taken to be the cause for the

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On a Possible Asymmetry of the Particles and Antiparticles in Weak Inter-
actions

processes $n \rightleftarrows p + e^- + \bar{\nu}'$ and $p \rightleftarrows n + e^+ + \nu$ this means
a renunciation of the symmetry of the particles and anti-
particles in weak interactions. Then the antiparticles are
no longer an exact analogon of the corresponding particles
with opposite charge. Their masses can, for instance, dif-
fer by an amount of about g^2 (square of the constant of
weak interactions). First the self-adjoint, relativistical-
ly invariant Hamiltonian of the β-decay is put down, con-
taining e^-, e^+, ν and $\bar{\nu}$ in an asymmetric way. At a time
inversion all constants are to be substituted by their
conjugated complex values. The usual theory of β-decay
is obtained when certain constants are equal to one an-
other. A similar separation into a positive frequency part
and a negative frequency part can also be carried out with
the operation of the nucleons. It is, however, not certain
if this has any sense. The above mentioned Hamiltonian is
non-local and therefore holds $\left[H(x_1), H(x_2) \right] \neq 0$; when
x_1 and x_2 are separated from each other by a space-like
interval. This commutator contains the functions
$\tilde{S}(x_1-x_2)$ instead of the function $S(x_1-x_2)$, which do not

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disappear outside the lightcone. When the operators S^+ and
S^- refer to electrons this means the abolition of the cau-
sality in the weak interactions at distances of about $\hbar/m_e c$,
There is no such localization for a neutrino field. This is
a serious objection against the considerations given here.
As, however, the theoretical principles earlier regarded as
absolutely correct (the conservation of the parity and the in-
variance with respect to the charge conjugatedness) were
generally dropped. An experimental checking of the scheme
developed here is nevertheless useful. An exact comparison
of the ratio between the probabilities of β^+-decay and
K-capture of one and the same nucleus with the value pre-
dicted by the usual theory would be especially desirable.
An analogous but difficult experiment is the comparison
between β^+-decay and the absorption of the antineutrino
by a proton. There are 3 references, 0 of which are Soviet.

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AUTHOR: Kron', L. B.,   Shekhter, V. M.   SOV/ 56-34-5-20/61

TITLE: On the Polarization of Electrons Emitted by Decaying Myons
            (O polyarizatsii elektronov pri raspade μ-mezonov)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1958,
            Vol. 34, Nr 5, pp. 1250 - 1253 (USSR)

ABSTRACT: The experimental results of the investigation of the spectrum,
            the asymmetry and the polarization of electrons for the de-
            cay of polarized myons obviously agree with the predictions
            of the theory of the two-component neutrino developed by A.
            Salam (Ref 1), L. Landau (Ref 2) and T. D. Lee (Li) and C. N.
            Yang (Ref 3). According to this theory, only four of ten
            complex constants C and C' C (which describe in the general
            case the decay of the myon) are different from zero:
            $C_V = C'_A \neq 0; C_A = C'_V \neq 0; C_S = C'_S = C_P = C'_P = C_m = C'_m = 0$.
            It is to be hoped that more precise experimental data will
            agree with the more rigid assumptions of Oumann of Fainberg
            (Ref 4) and also of Marshak and Sudarshan (Ref 5), that
            electron interaction has two components. From these assump-
            tions it would follow that $C_V = \pm C'_V; C_A = \pm C'_A$. For the

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On the Polarization of Electrons Emitted by Decaying Myons

latter case a ... ... distribution of the electrons in the decay of a resting myon is given.

$$(1 \mp \vec{\xi}\vec{n})\, [3 - 2\varepsilon \pm \vec{\eta}\vec{n}(1 - 2\varepsilon)]\varepsilon^2 d\varepsilon$$

The derivation of this formula is outlined in a mathematical supplement. According to this formula the electron must be totally polarized in the longitudinal direction. Moreover, the spin of the positive myon produced by the decay of a positive pion is orientated antiparallel to its momentum. The experimental verification of this formula does not mean that the neutrino has two components. The authors mention the following problem: May a suitably chosen combination of the S, P and T—variants give a formula that is completely identical with the above mentioned formula. But an approximate investigation answers this question in a negative manner. There are 21 references, 5 of which are Soviet.

SUBMITTED: December 11, 1957

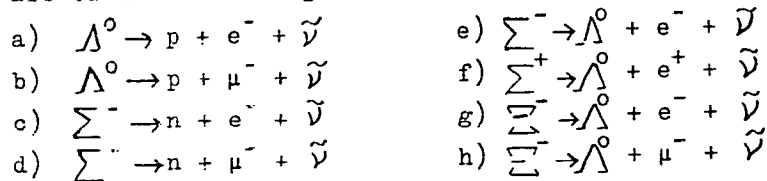Card 2/3

21 (8)
AUTHOR: Shekhter, V. M.

TITLE: On the β-Decay of Hyperons (O β-raspade giperonov)

ABSTRACT: In continuation of the papers by Feynman and Gell-Mann
                 (Ref 1) as well as of those by Marshak and Sudarshan
                 (Ref 2) (universal V-A-interaction), the author investigates
                 the decay probabilities of hyperons in nucleons (and
                 hyperons respectively) and leptons; these β-decay reactions
                 are of the following nature:

a) $\Lambda^0 \to p + e^- + \tilde{\nu}$ e) $\Sigma^- \to \Lambda^0 + e^- + \tilde{\nu}$

b) $\Lambda^0 \to p + \mu^- + \tilde{\nu}$ f) $\Sigma^+ \to \Lambda^0 + e^+ + \tilde{\nu}$

c) $\Sigma^- \to n + e^- + \tilde{\nu}$ g) $\Xi^- \to \Lambda^0 + e^- + \tilde{\nu}$

d) $\Sigma^- \to n + \mu^- + \tilde{\nu}$ h) $\Xi^- \to \Lambda^0 + \mu^- + \tilde{\nu}$

which have hitherto not yet been discovered. They are
represented by the general form

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On the β-Decay of Hyperons

$$Y \rightarrow \left\{\begin{array}{c} N \\ Y' \end{array}\right\} + \left\{\begin{array}{c} e^- \\ \mu^- \end{array}\right\} + \tilde{\nu}$$

In the second chapter the energy distribution, the
polarization, and the asymmetry of the emission of particles
occurring in the decay of polarized hyperons is investigated
In part 3 the results obtained are discussed and numerically
evaluated

	$W_0 (\text{sec}^{-1})$	$\tau \cdot 10^{10}$ sec		W_0	$\tau \cdot 10^{10}$
a)	$7.4 \cdot 10^7$	2.8	e)	$2.1 \cdot 10^6$	1.8
b)	$1.2 \cdot 10^7$	2.8	f)	$1.4 \cdot 10^6$	0.9
c)	$5.4 \cdot 10^8$	1.8	g)	$1.6 \cdot 10^8$	1
d)	$2.4 \cdot 10^8$	1.8	h)	$3.4 \cdot 10^7$	1

In appendix I the calculation of the probability of decay is
discussed and appendix II deals with the universal
V-A-interaction in the case of the non-conservation of
parity. There are 4 figures, 1 table, and 9 references,
2 of which are Soviet.

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On the β-Decay of Hyperons   SOV/56-35-2-21/60

ASSOCIATION: Leningradskiy fiziko-tekhnicheskiy institut (Leningrad
               Physico-Technical Institute)

SUBMITTED: March 26, 1958

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SOV/56-36-2-34/63

24(5)
AUTHOR: Shekhter, V. M.

TITLE: On the Variants of Weak Interactions Possible in the Feynman-
               Gell-Mann Scheme (O variantakh slabykh vzaimodeystviy,
               vozmozhnykh v skheme Feynmana - Gell-Manna)

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959,
               Vol 36, Nr 2, pp 581-584 (USSR)

ABSTRACT: Feynman and Gell-Mann (Ref 1) as well as Gershteyn and
               Zel'dovich (Ref 2) investigated the vector interaction in
               β-decay and the vector part of the β-decay Lagrangian in the
               case of strong interaction. Pais (Ref 3) showed that certain
               symmetry classes of the interaction Lagrangian are not in
               keeping with the experiments on the simultaneous production
               of strange particles. In the present paper the author shows
               that the uniqueness of the β-decay current follows from the
               results obtained by Pais; this current is uniquely defined
               by the requirement that the divergence of its vector part
               vanishes. The current responsible for hyperon decay is,
               however, not conserved. If the contrary is the case, the
               strong interaction Lagrangian has such a symmetry as contra-
               dicts the experiments on the simultaneous creation of strange

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