"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Grigoriy Anisimovich; POKROVSKIY, Mikhail Aleksandrovich; SOSEDOV, O.O., retsenzent; PINEGIN, I.I., otv.red.; IGNAT'YEVA, L.I., red.izd-va; BERESLAVSKAYA, L.Sh., tekhn.red.; IL'INSKAYA, G.M., tekhn.red.

[Expansion of the U.S.S.R. iron mining and ore dressing industry in 1959-1965] Razvitie zhelezorudnoi promyshlennosti SSSR v 1959-1965 godakh. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 89 p. (MIRA 13:7)
(Iron mines and mining) (Ore dressing)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

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BRAUN, Grigoriy Anisimovich; POKROVSKIY, M.A., otv.red.; IGNAT'IEVA, L.I., red.izd-va; SHKLYAR, S., tekhn.red.; NADEINSKAYA, A.A., tekhn.red.

[Iron-ore supply center for the ferrous metallurgy of the U.S.S.R.; raw material resources and prospects for the expansion of the iron ore industry] Zhelezorudnaia baza chernoi metallurgii SSSR; syr'evye resursy i perspektivy razvitiia zhelezorudnoi promyshlennosti. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 322 p. (MIRA 14:3)

(Iron mines and mining) (Iron ores)
(Ore dressing)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

FREY, V.I.; YEFIMOV, M.V.; FEYGIN, L.M.; MININA, K.G.; MALYSHEV, I.I., retsenzent; SKOBNIKOV, M.L., retsenzent; BRAUN, G.A., retsenzent; BRAUN, G.A., retsenzent; KHRUSHCHOV, N.A., retsenzent; GRISHINA, T.B., red. izd-va; IYERUSALIMSKAYA, Ye., tekhn. red.

[Comparative evaluation of iron-ore deposits based on the results of a preliminary prospecting] Sravnitel'naia otsenka zhelezorudnykh mestorozhdenii po rezul'tatam predvaritel'noi razvedki. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po geol. i okhrane nedr, 1961. 153 p. (MIRA 14:11)

(Iron ores)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.

A possibility of utilizing radioactive isotopes for the automation of the concentration of oil shale. Eesti tead akad tehn fuus 9 no.4:338-342 '60. (EEAI 10:7)

1. Eesti NSV Teaduste Akadeemia Kuberneetika Instituut.
(Shale) (Radioisotopes)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.

The possibility of distinguishing oil shale from limestone with the help of two pencils of radioactive rays. In Russian. Eesti tead akad tehn fuus 10 no.1:33-39 '61. (EEAI 10:7)

1. Institut kibernetiki Akademii nauk Estonskoy SSR.
(Shale) (Limestone) (Gamma rays)

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BRAUN, I.

RUMANIA

TICH MINH, Hoang, Professor; LAURESCU, C., MD; BRAUN, I., MD; ZAMFIR, Gh., MD; VAN SÖ, Pham; VAN MAU, Nguyen.

Work compiled at the Institute of Hygiene in Hanoi, during the activity of the Rumanian sanitary team in the Democratic Republic of Vietnam, 1959-1960.

Bucharest, Igiena, Vol XII, No 2, Mar-Apr 63, pp 149-154.

"Enrichment in Vitamin B_1 of "Nuoc-Mam", a national Vietnamese Food."

(6)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Iren, dr., egyetemi tanarseged

Sequelae of abscesses of the incisors. Fogorv. szemle 47 no.6: 193-196 June 54.

1. Z Debreceni Orvostudomanyi Egyetem Stomatologiai Klinikajarol (Igazgato: Adler Peter dr. egyet. tanar.)

(TEETH, abscess,
sequelae, incisors)
(ABSCESS,
incisors, sequelae)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.

Improved method for distinguishing shale from limestone by means of two pencils of gamma rays of different penetrability. Eesti tead.akad.tehn.füüs. no.1:59-66 '62.

1. Institut kibernetiki AN Estonskoy SSR.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.

Possibility of distinguishing oil shale from limestone with the aid of two beams of radioactive radiation. Eesti tead akad tehn fuus 10 no.1:33-39 '61.

1. Academy of Sciences of the Estonian S.S.R., Institute of Cybernetics.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.; FEYGIN, M.

Food wastes constitute seventy per cent of the feeds. Obshchestv. pit. no.12:21-23 D '62. (MIRA 16:1)

(Leningrad—Waste products) (Feeds)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

SHUMILOVSKIY, N.N. (Moskva); MEL'TTSER, L.V. (Moskva); BRAUN, I.A. (Moskva)

Prospects of using the Mössbauer effect in automatic control.
Izv. AN SSSR. Tekh. kib. no.6:111-120 N-D '63. (MIRA 17:4)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.V.

Rock breaking forces in the UKB machine boring process.
Trudy TSNIIPodzemshakhstroia no.2:34-46 '63. (MIRA 17:5)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.V.

AGALINA, M.S., inzh.; AKUTIN, T.K., inzh.; APRESOV, A.M., inzh.; ARISTOV, S.S., kand. tekhn. nauk,; BELOSTOTSKIY, O.B., inzh.; BERLIN, A.Ye,,inzh.; BESSKIY, K.A., inzh.; BLYUM, A.M., inzh.; BRAUN, I.V., inzh.; BRODSKIY, I.A., inzh.; BURAKAS, A.I.,inzh.; VAYNMAN, I.Z., inzh.; VARSHAVSKIY, I.N.,inzh.; VASIL'YEVA, A.A.,inzh.; VORONIN, S.A.,inzh.; VOYTSEKHOVSKIY, L.K., inzh.; VRUBLEVSKIY, A.A.,inzh.; GERSHMAN, S.G., inzh.; GOLUBYATNIKOV, G.A.,inzh.; GOHLIN, M.Yu., inzh.; GRAMMATIKOV, A.N., inzh.; DASHEVSKIY, A.P.,inzh.;DIDKOVSKIY, I.L., inzh.; DOBROVOL'SKIY, N.L.,inzh.; DROZDOV, P.F.,kand. tekhn. nauk,; KOZLOVSKIY,A.A.,inzh.; KIRILENKO, V.G.,inzh.; KOPELYANSKIY, G.D.,kand. tekhn. nauk,; KORETSKIY, M.M.,inzh.; KUKHARCHUK, I.N.,inzh.; KUCHER, M.G.,inzh.; MERZLYAK, M.V.,inzh.; MIRONOV, V.V.,inzh.; NOVITSKIY, G.V.,inzh.; PADUN, N.M.,inzh.; PANKRAT'YEV, N.B., inzh.; PARKHOMENKO, V.I.,kand. biol. nauk,; PINSKIY, Ye.A.,inzh.; PODLUBNYY, S.A., inzh.; PORAZHENKO, F.F.,inzh.; PUZANOV, I.G.,inzh.; REDIN, I.P.inzh.; REZNIK, I.S.,kand. tekhn. nauk,; ROGOVSKIY, L.V.,inzh.; RUDERMAN, A.G.,inzh.; RYBAL'SKIY, V.I.,inzh.; SADOVNIKOV, I.S.,inzh.; SEVER'YANOV, N.N.,kand. tekhn. nauk,; SEMESHKO, A.T.,inzh.; SIMKIN, A.Kh., inzh.; SURDUTOVICH, I.N.,inzh.; TROFIMOV, V.I.,inzh.; FEFER, M.M.,inzh.; FIALKOVSKIY, A.M.,inzh.; FRISHMAN, M.S., inzh.; CHERESHNEV, V.A., inzh.; SHESTOV, B.S., inzh.; SHIFMAN, M.I., inzh.; SHUMYATSKIY, A.F.,inzh.; SHCHERBAKOV, V.I.,inzh.; STANCHENKO, I.K., otv. red.; LISHIN, G.L.,inzh.,red.; KRAVTSOV,Ye.P., inzh.,red.; GRIGOR'YEV, G.V.,red.; KAMINSKIY, D.N.,red.; KRASOVSKIY, I.P.,red.; LEYTMAN, L.Z., red.[deceased],; GUREVICH, M.S.,inzh.,red.; DANILEVSKIY, A.S.,inzh.,red.; DEMIN, A.M., inzh.,red.; KAGANOV, S.I.,inzh.,red.; KAUFMAN, B.N., kand. tekhn. nauk, red:.LISTOPADOV, N.P.,inzh.,red.; MENDELEVICH, I.R., inzh.,red.[deceased];

(continued on next card)

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AGALINA, M.S.... (continued) Card 2.

PENTKOVSKIY, N.I.,inzh.,red.; ROZENBERG, B.M.,inzh.,red.; SLAVIN, D.S., inzh.,red.; FEDOROV, M.P.,inzh.,red.; TSYMBAL, A.V.,inzh.,red.; SMIRNOV, L.V., red. izd-va,; PROZOROVSKAYA, V.L., tekhn. red.

[Mining ; an encyclopedic handbook] Gornoe delo; entsiklopedicheskii spravochnik. Moskva, Gos. nauchno-tekhn. izd-vo lit-ry po ugol'noi promyshl. Vol. 3.[Organization of planning; Construction of surface buildings and structures] Organizatsiia proektirovaniia; Stroitel'stvo zdanii i sooruzhenii na poverkhnosti shakht. 1958. 497 p. (MIRA 11:12)

(Mining engineering)
(Building)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

KUDRYAKOV, M.N., inzh.; BRAUN, I.V., inzh.

Result of service testing of UKB-3, 6. Shakht. stroi. no.6:14-17 '58. (MIRA 11:6)

1.Giproshakhtostroymash.
(Boring machinery--Testing)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Ivan Vasil'yevich; KOMINSKIY, M.A., otv.red.; KOSTON'YAN, A.Ya., red.izd-va; PROZOROVSKAYA, V.L., tekhn.red.

[Installation of fixed mining equipment] Montazh shakhtnykh statsionarnykh ustanovok. Moskva, Gos.nauchno-tekhn.izd-vo lit-ry po gornomu delu, 1960. 232 p. (MIRA 13:8)
(Mine hoisting--Equipment and supplies)
(Mine timbering)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.V., inzh.

Correcting the crookedness of a shaft in Mine No.4-21 mined with the UKB-3,6r machine unit. Shakht.stroi. 5 no.12:20-22 D '61. (MIRA 14:12)

1. TsNIIpodzemshakhtostroy.
(Donets Basin--Shaft sinking)
(Coal mining machinery)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

MALEVICH, N.A., doktor tekhn.nauk; KUKLIN, A.I., kand.tekhn.nauk; BRAUN, I.V., inzh.

"Means of controlling water in potassium and salt mines" by N.G. Trupak. Reviewed by N.A. Malevich, A.I. Kuklin, and I.V. Braun. Shakht. stroi. 6 no.6:30-31 Je '62. (MIRA 15:6)
(Mine water)
(Trupak, N.G.)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, I.V., inzh.

Temporary stock supports for horizontal workings. Shakht.stroi. 6 no.11:30-31 N '62. (MIRA 15:12)
(Hungary—Mine timbering)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, J.

Protection against grapevine Peronospora in practice. p. 194.
KOZLEMENYEI, Budapest. Vol 8, no. 1/2, 1955.

SOURCE: EEAL Vol 5, no. 7, July 1956.

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BRAUN, Jaromir, inz.

An aid for calculating transient responses. Slaboproudy obzor 22 no.4:209-212 Ap '61. (EEAI 10:6)

1. Ustav radiotechniky a elektroniky Ceskoslovenske akademie ved, Praha.

(Transients (Electricity))

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, IOSIF [Braun, J.], doktor

Observations of rowatinex therapy. Urologiia 24 no.3:65-66 My-Je '59. (MIRA 12:12)

1. Iz urologicheskogo otdeleniya (zav. - doktor I. Braun) bol'nitsy Bulovka v Prage.
(TERPENES, ther. use,
rowatinex in urolithiasis (Rus))
(URINARY TRACT, calculi,
ther., rowatinex (Rus))

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Josef

Our experience with prostatectomy during the past 5 years. Rozhl. chir.39 no.7:453-460 Jl'60.

1. Urol. oddeleni. Praha-Bulovka.
(PROSTATECTOMY)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Juliusz

On the activization of the Zawiercie-Myszkow District; a conference of the Committee for Problems of the Upper Silesian Industrial District in Katowice and Zawiercie. Nauka polska 8 no.3:185-195 Jl-S '60.

1. Polska Akademia Nauk Komitet dla Spraw Gornoslaskiego Okregu Przemyslowego, Katowice.

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BRAUN, Juliusz

"Sosnowiec; roads and development factors of an industrial city" by J.Ziolkowski. Reviewed by Juliusz Braun. Przegl geogr 35 no.3:505-508 '63.

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ADAMASZEK, Kazimierz; FORYTARZ, Bronislaw; BRAUN, Kazimierz

Pretended-twist spirals, a new device to make pretended-twist in the drawing field of spinning frames. Przegl wlokien 16 no.2:96-98 F '62.

1. Bielska Fabryka Maszyn Wlokienniczych, Bielsko.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Kazimierz

Problems of heat curing of fresh concrete in the high-frequency electric field. Budown ladowe no.4:93-129 '61.

1. Katedra Budownictwa Zelbetowego, Politechnika, Gdansk

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Kazimierz (Gdansk)

Contemporary technology of concrete; selected problems. Przegl budowl i bud mieszk 34 no.8:477-482 Ag '62.

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KRIKUNOV, M.; BRAUN, K.

Securing the achieved successes. Prof.-tekh. obr. 20 no.6: 20-21 Je '63. (MIRA 16:7)

1. Zamestitel' direktora po uchebno-proizvodstvennoy rabote Baksanskogo sel'skogo professional'no-tekhnicheskogo uchilishcha Kabardino-Balkarskoy ASSR (for Krikunov). 2. Starshiy bukhgalter Baksanskogo sel'skogo professional'no-tekhnicheskogo uchilishcha Kabardino-Balkarskoy ASSR (for Braun).
(Farm mechanization--Study and teaching)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, Kazimierz, dr inz. (Gdansk)

Building industry in Czechoslovakia. Przegl budowl i bud mieszk 36 no. 5:278-279 My '64.

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BRAUN, Kazimierz

Dielectric concrete curing. Archiw inz lad 11 no.11:53-85 '65.

1. Department of Ferroconcrete Constructions of the Gdansk Technical University. Submitted July 10, 1964.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M. 1948

(Med. Clinic, U. of Debrecen)

"Iodimetric Methods for the Determination of Nitrogen-Containing Compounds in the Clinic. 111. Iodimetric Determination of Residual Nitrogen Without Ashing."

Weiner Ziet. fur Innere Medizin, 1948 29/10(460-62)
Abst: Exc. Med. 11. Vol. 11, No. 8. p. 976

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

CA

Iodometric determination of urea in urine. Sándor Dán (Dickman) and Magda Braun. *Orvosi Hetilap* 90, 283-4 (1949).—Three cc. 10% CCl_3COOH is added to 3 cc. urine, shaken, filtered, and then dild. 100 times. Now 1 cc. of the dild. urine is added to each of 4 dry centrifuge tubes; 0.3 cc. glacial AcOH is added to tubes 1-2, 0.3 cc. xanthydrol dissolved in glacial AcOH to tubes 3-4, let stand for 30 min., shaken, and centrifuged. Now 4 Hagedorn-Jensen tubes are cooled in ice water, 2.5 cc. distd. water and 5.0 cc. 1.0 *N* NaOH added to each tube, and 0.65 cc. of the above centrifugate added. After 1-2 min. 2.5 cc. 10% $CaCl_2$ and 4.0 cc. 0.01 *N* Ca hypobromite are introduced. After 5 min. 2.0 cc. 15% KI (freshly prepd.) and 5.0 cc. 10% HCl are added, and the sol. is titrated with 0.005 *N* $Na_2S_2O_3$ with 1% starch in a concd. soln. of NaCl as indicator. The difference of titration of tubes 1-2 against tubes 3-4 multiplied by 50.7 gives γ of urea in 0.5 cc. hundred-fold dild. urine.

István Finály

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

HEJDA, Zd., inz.; BRAUN, M.

Analytic use of the HS 200-2 mass spectrometer. Sbor vak elektrotech 3:175-185 '61.

1. Moravske chemicke zavody, Dusikarny, Ostrava.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

ACC NR: AP6029178 SOURCE CODE: RU/0003/66/017/002/0108/0109

AUTHOR: Gavrila, E.; Braun, M.; Sorescu, E.

ORG: Regional Laboratory for the Control of Drugs, Craiova (Laboratorul regional de controlul medicamentelor)

TITLE: Contributions to the determination of anestezine

15

B

SOURCE: Revista de chimie, v. 17, no. 2, 1966, 108-109

TOPIC TAGS: colorimetric analysis, chemical detection, titrimetry

ABSTRACT: The authors describe the determination of benzocaine by a colorimetric method involving the titration of the aminic component by means of titration with perchloric acid of the product dissolved in acetic acid, using crystal violet as indicator. Orig. art. has: 1 table. [JPRS: 36,556]

SUB CODE: 07 / SUBM DATE: none / ORIG REF: 004 / OTH REF: 002

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

24(5)

AUTHOR: Braun, M. A. SOV/54-58-4-11/18

TITLE: On the Density of the Electric Charge of Two Nucleons in Static Meson Theory (O plotnosti elektricheskogo zaryada dvukh nuklonov v staticheskoy mezonnoy teorii)

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1958, Nr 4, pp 107-118 (USSR)

ABSTRACT: This paper investigates the problem mentioned in the title using the methods of reference 4. For this purpose the matrix elements $\langle f|\rho(\vec{r})|i\rangle$ are investigated, where $\rho(\vec{r})$ denotes the operator of the charge density of two physical nucleons in the current $\vec{r}$ and $|f\rangle$ and $|i\rangle$ denote the initial and final states of these nucleons. For $|i\rangle$ the adiabatic approximation is used. The $|i\rangle$-state is a singlet state in the sense of the isotropic spin. For the computation of the matrix element $\langle f|\rho(\vec{r})|i\rangle$ it is necessary to compute the static matrix element (the matrix element of the charge density) with the following omissions: in summing up with respect to the intermediate state the fact is neglected that apart from the 2 physical nucleons two and more mesons are contained. Further, that it is possible to neglect the single-

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SOV/54-58-4-11/18

On the Density of the Electric Charge of Two Nucleons in Static Meson Theory

meson state at all. The terms of the matrix element which disappear in the case of an increasing nucleon-interval R are expressed by $e^{-n\mu R}$ ($n \geqslant 2$, μ rest mass of the pion). Charge-density of the "naked" nucleon and meson cloud are separately computed. The results are used for the unelastic electron-deuteron scattering cross section. It was found that for an energy transfer up to 50 Mev the meson corrections may be well used by introducing proton and neutron charge form factors, as the deformation of the meson clouds caused by the interaction of nucleons may be neglected. The author thanks Yu. V. Novozhilov for suggesting this topic and supervising the work. There are 9 references, 1 of which is Soviet.

SUBMITTED: February 26, 1958

Card 2/2

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.

Electric charge density of two nucleons in statistical meson theory [with summary in English]. Vest.LGU 13 no.22:107-118 '58. (MIRA 12:4)

(Mesons) (Electric charge and distribution)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

SOV/56-37-3-34/62

AUTHOR: Braun, M. A.

TITLE: On the Determination of the Potential in the Quantum Field Theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1959, Vol 37, Nr 3(9), pp 816-822 (USSR)

ABSTRACT: The author investigates the problem mentioned in the title in connection with the restrictions imposed on the amplitude of the transition by the conditions of orthogonality, normalization, and completeness for the systems of the levels of particles which are or are not in interaction with one another. The shortcomings of previous papers on this subject are briefly mentioned. The author follows the idea of Yu. V. Novozhilov (Refs 3,4) that the energy-independent potential may be determined by a nonlinear integral equation for the transition amplitude. In the present paper this idea is developed and defined. The author proceeds from the quantity $\langle \varphi_\alpha | \psi_\beta^{(+)} \rangle$ in the quantum mechanics of two particles and from the quantity $\langle \Phi_\alpha | \Psi_\beta^{(+)} \rangle$ in the quantum field theory. φ_α and Φ_α denote the levels of two particles which are not in inter-

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action, and $\psi_\alpha^{(+)}$ and $\Phi_\alpha^{(+)}$ the levels of interacting particles with a divergent wave. The nonlinear equations for the transition amplitude establish a simple connection between $\langle \varphi_\alpha | \psi_\beta^{(+)} \rangle$ and the potential. The problem therefore is to establish a connection between $\langle \varphi_\alpha | \varphi_\beta^{(+)} \rangle$ and $\langle \Phi_\alpha | \Phi_\beta^{(+)} \rangle$ (the latter quantity is assumed to be known in the determination of the potential). In the first section, the author investigates the following Schroedinger equation for a system of 2 particles in interaction with potential V: $i\partial\psi/\partial t = (h_o + V)\psi = h\psi$. The eigenvectors φ_α of the unperturbed Hamiltonian are then introduced, where α denotes the spins and momenta of the two particles. It is assumed that $h_o \varphi_\alpha = E_\alpha \varphi_\alpha$ and $\langle \varphi_\alpha | \varphi_\beta \rangle = \delta_{\alpha\beta}$. The corresponding orthostandardized eigenvectors of the complete Hamiltonian with a diverging wave are denoted $\psi_\alpha^{(+)}$. It holds that $\langle \varphi_\alpha | \psi_\beta^{(+)} \rangle = \delta_{\alpha\beta} - t_{\alpha\beta}/(E_\alpha - E_\beta - i0)$. For $t_{\alpha\beta}$ the linear

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equation $t_{\alpha\beta} = V_{\alpha\beta} - \sum_{\gamma} \frac{V_{\alpha\gamma}\, t_{\gamma\beta}}{E_{\gamma} - E_{\beta} - i0}$ and the nonlinear equation $t_{\alpha\beta} = V_{\alpha\beta} - \sum_{\gamma} \frac{t_{\alpha\gamma}\, t^{+}_{\gamma\beta}}{E_{\gamma} - E_{\beta} - i0} - \sum_{m} \frac{t_{\alpha m}\, t^{+}_{m\beta}}{E_{m} - E_{\beta}}$ may be written down. The nonlinear equation is practically the explicit solution of the linear equation. The author then deals with a quantum field system. In the field theory the usual definition of the transition amplitude reads as follows: $T_{\Gamma\Delta} = \langle \Phi_{\Gamma} | H - E_{\Gamma} | \Psi^{(+)}_{\Delta} \rangle$. Φ denotes the so-called asymptotic steady states. The quantities $T_{\alpha\beta}$ and $T_{\alpha m}$ cannot replace $t_{\alpha\beta}$ in the above integral equations. The second section deals with the construction of the potential. The levels with $\Gamma = \gamma$ are separated from all levels $\Psi^{(+)}_{\Gamma}$, and P is assumed to be the projector to these levels. The found orthostandardized system $P\tilde{\Phi}_{\alpha}$ is then assumed to be complete in the space defined by

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projector P. $\tilde{T}_{\alpha\beta}$ correctly describe the scattering, i.e. they are in agreement with $T_{\alpha\beta}$ on the energy surface $E_\alpha = E_\beta$. The determined potential is Hermitian, and the Schroedinger equation with the potential V leads to the scattering amplitudes $\tilde{T}_{\alpha\beta}$. This Schroedinger equation with potential V contains nothing superfluous. The determined potential V is not the only potential; a whole set of potentials is obtained, each of which characterizes the behavior of the particles very well within the framework of this problem. There are 9 references, 2 of which are Soviet.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: April 17, 1959

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

68917

S/054/60/000/01/004/022
B013/B007

AUTHOR: Braun, M. A.

TITLE: Consideration of the Bound States in the Theory of Clothed Particles 19

PERIODICAL: Vestnik Leningradskogo universiteta. Seriya fiziki i khimii, 1960, Nr 1, pp 26-32 (USSR)

ABSTRACT: The present paper deals with the hitherto not investigated problem of the reduction of matrix elements to one-particle elements for the case in which bound states participate in this problem. In this the author bases upon his previously obtained results (Ref 6) and confines himself to the case in which no polarization of the vacuum exists. A generalization for the case of vacuum polarization may be brought about by means of the methods described in reference 3. For reasons of concreteness the bound state of two nucleons (deuteron) entering into interaction with the quantized meson field is investigated. The Hamiltonian of the system has the structure $H = H_{N_1} + H_{N_2} + H_\pi + H_{\pi N_1} + H_{\pi N_2}$, Every problem in which bound states take part is reduced to calculating the matrix elements of certain operators between the states Ψ_m, $\Psi_\alpha^{(\pm)}$, and Φ_α.

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68917

Consideration of the Bound States in the Theory of Clothed Particles

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B013/B007

The author shows here in what manner such matrix elements may be reduced to single-nucleon elements (i.e. to matrix elements between the eigenstates of the Hamiltonian H_1 or H_2). The quantities $V^{(\pm)}_{\alpha\beta} = \langle \Omega^{(\pm)}_{\alpha} | H - E_{\alpha} | \Omega^{\pm}_{\beta} \rangle$ represent two potentials $(V^{\pm})$ of nucleon interaction in momentum space. Here the wave vector $\Psi^{(\pm)}_{\alpha}$ or Ψ_m may be expressed as follows by the solutions of the Schrödinger equation with the potentials $V^{(\pm)}$: $\Psi^{(\pm)}_{\alpha(m)} = \sum_{\gamma} f^{(\pm)}_{\alpha(m)}(\gamma)\Omega^{(\pm)}_{\gamma}$; here $\left(E_{\alpha(m)} - E_{\beta}\right) f^{(\pm)}_{\alpha(m)(\pm)}(\beta) = \sum_{\gamma} V^{(\pm)}_{\beta\gamma} f^{(\pm)}_{\alpha(m)(\pm)}(\gamma)$ holds. The upper signs $(\pm)$ characterize the boundary conditions for the scattering states: divergent (+) and convergent (-) waves. This representation (7) is fundamental for the present investigation. From the point of view of the theory of clothed particles, the contribution resulting from the states $\Psi^{(\pm)}$ with one or several real mesons is due to the higher orders

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of interaction between nucleons and may therefore be considered to be small (as compared to the contribution due to the meson-less state). In first approximation, calculation of the matrix elements between the states $\Psi_\alpha^{(\pm)}$, Ψ_m, and Ψ_γ is reduced to calculating the matrix elements between the Φ_χ alone. The typical matrix element $\langle \Omega_\alpha^{(\pm)} | O | \Omega_\beta^{(\pm)} \rangle$, where O is a certain operator, is finally represented by a series of the form $\sum_{n=0}^{\infty} O_{\alpha\beta}^{(n)}$, where n denotes the order of interaction (exchange of n mesons). Next, the formulas for considering the difference between $\Omega_\gamma^{(\pm)}$ and Φ_γ are derived. The formula valid in the first order with respect to interaction (exchange of a meson) is derived and written down. From the here discussed considerations there results also the manner in which the higher orders of interaction in the matrix element $\langle \Phi_\alpha | O | \chi_\beta^{(\pm)} \rangle$ are taken into account. Finally, the scheme is developed to a typical problem, which

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Consideration of the Bound States in the Theory of Clothed Particles

68917
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B013/B007

includes bound states, viz. the scattering of a pion on a deuteron. In this, the author confines himself to two channels of the reaction: 1. $\pi + d \rightarrow \pi + d$, 2. $\pi + d \rightarrow \pi + 2N$. In the case under investigation also the T-matrix is reduced to single-nucleon-matrix elements. The corrections to momentum approximation are rather voluminous in the first order of interaction. The author supplies the corresponding expressions for an interaction which is linear with respect to the meson field. The final results of calculating the π-d-scattering cross section will be given in papers to follow. The author thanks Yu. V. Novozhilov for his attention and discussions. There are 6 references, 5 of which are Soviet.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

S/056/60/039/003/025/045
B006/B063

AUTHOR: Braun, M. A.

TITLE: The Normalization Constants of State Vectors in the Field Theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 3(9), pp. 737-740

TEXT: The author makes use of the methods of weak convergence to show that the results obtained by Van Hove and de Witt in Refs. 1, 2 are incorrect. He shows that the normalization constant of the n-particle state in the field theory, introduced by these two authors, is equal to the product of the so-called vacuum constant and a factor Z^n, where Z is the renormalization constant of the wave function in the conventional field theory formalism. For reasons of simplicity, the author considers a scalar field A(x) interacting with itself. Finally, some remarks are added on the renormalization of the external lines in the S-matrix, and it is pointed out that the final expression for the S-matrix and, hence, also for the transition probability is not explicitly dependent on Z,

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The Normalization Constants of State Vectors in the Field Theory

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B006/B063

and can be expressed only by the interaction renormalization constant. The author thanks Yu. V. Novozhilov for comments and his interest in this work, and L. D. Faddeyev for discussions. There are 4 non-Soviet references.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: April 9, 1960

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86904

S/056/60/039/005/021/051
B006/B077

24.4500

AUTHORS: Braun, M. A., Novozhilov, Yu. V.

TITLE: Some Properties of Dressed Particle Operators in the Field Theory

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 5(11), pp. 1317-1322

TEXT: The authors examined the properties of operators of dressed particles, which are determined by single particle states produced when acting on a vacuum. First of all the local relativistic-invariant operator Q(x) of dressed particles is defined, and also the in- and out-operators and some relations between these are given. It is further shown that besides a strong limit at large periods ($t \to \pm \infty$) for the production operators of the dressed particles (which has already been demonstrated by Haag (Ref. 1)) such a strong limit exists also for the annihilation operators of these particles; i.e., the annihilation operators of the dressed particles tend, with $t \to \pm \infty$, to the in- and out-operators of annihilation. The examination of the properties of the operators Q(x)

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Some Properties of Dressed Particle Operators in the Field Theory

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shows that if the expansion in a series for the coupling constant is possible, Q (x) cannot satisfy the causality conditions in their usual form, i.e., the commutator of Q(x) is not equal to zero on a three-dimensional surface. The proof for this is based on the perturbation theory. All considerations are limited to scalar particles of the same type. There are 5 references: 1 Soviet, 1 US, 2 Italian, and 1 Dutch.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 25, 1960

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

S/056/60/039/006/030/063
B006/B056

AUTHORS: Braun, M. A., Prokhorov, L. V.

TITLE: Properties of the Scattering Amplitude Resulting From Unitarity

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, 1960, Vol. 39, No. 6(12), pp. 1641-1646

TEXT: The scattering amplitude in two-particle interaction is studied along with the restrictions resulting from the principle of unitarity and the analyticity properties. Only general estimates are obtained, however, without application of any approximation. The scattering of two neutral spin-zero particles of the mass μ is studied, whose interaction may be characterized by the amplitude $A(s,t) \equiv \bar{A}(s,x)$, where s and t are the invariant variables of the Mandelstam theory, x is the scattering angle cosine in the c.m.s; $s = 4(q^2+\mu^2)$, $t = -2q^2(1-x)$, q is the momentum. The limitedness of the quantity Im $A(s,t)$ as a function of s(with $s > 4\mu^2$), which contains no discontinuities of the first kind in

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the physical range of the variables, is investigated first. From the unitarity conditions (7): $\mathrm{Im}\, A_l(s) = (2q/\sqrt{s})\,|A_l(s)|^2$ + terms for inelastic scattering it follows for partial waves that $\mathrm{Im}\, A_l(s) > 0$. Now the behavior of $\tilde{A}(s,x)$ at $s \to \infty$ is investigated. From (7) it may be concluded that with sufficiently large s, $|A_l(s)| \leq 2$. It may be shown that, always assuming that the energy tends toward infinity, the amplitude cannot increase unrestrictedly, except, possibly, individual scattering angle values x. It is shown that under certain reasonable assumptions, the total scattering cross section cannot become infinitely large with growing energy s. The authors finally thank Yu. V. Novozhilov for his interest and discussions, and K. K. Golovkin for his advice in connection with mathematical problems. I. Ya. Pomeranchuk is mentioned. There are 3 references: 1 Soviet, 1 US, and 1 Italian.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: May 25, 1960

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.; NOVOZHILOV, Yu.V.

Some properties of operators of clothed particles in the field theory. Zhur.eksp.i teor.fiz. 39 no.5:1317-1322 N '60. (MIRA 14:4)

1. Leningradskiy gosudarstvennyy universitet.
(Quantum field theory)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.

$\pi + d \rightleftarrows 2N$ process according to the dressed particles method.
Zhur. eksp. i teor. fiz. 40 no.4:1179-1184 Ap '61. (MIRA 14:7)

1. Leningradskiy gosudarstvennyy universitet.
(Nuclear reactions) (Mesons--Scattering)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M. A.

Cand Phys-Math Sci - (diss) "Counting of bound states in the theory of orbital particles." Leningrad, 1961. 11 pp; (Ministry of Education RSFSR, Leningrad State Pedagogical Inst imeni A. I. Gertsen, Chair of Theoretical Physics); 180 copies; price not given; bibliography on pp 10-11 (15 entries); (KL, 7-61 sup, 217)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

S/056/62/042/004/030/037
B125/B102

AUTHOR: Braun, M. A.

TITLE: Analytical properties of the bound-state wave function for a superposition of Yukawa potentials

PERIODICAL: Zhurnal eksperimental'noy i teoreticheskoy fiziki, v. 42, no. 4, 1962, 1106-1111

TEXT: The Schrödinger equation holding at $k^2 \geqslant 0$ in the momentum space for a spinless particle in the S state ($\hbar = 2M = 1$, M = reduced mass of the particle) has the solution

$$\psi(t) = (1/2\pi(t + \varkappa^2)) \int_{\mu^2}^{\infty} f(z,t)\varrho(z)dz.$$

This solution, the wave function $\psi(k^2)$ of the bound S state for a superposition of Yukawa potential, is an analytic function of the complex variable $k^2 = t$ throughout the complex half-plane, except in the point $t = -\varkappa^2$ (pole) and the cut $t \leqslant -(\mu + \varkappa)^2$. For $|t| \to \infty$, $\psi(t)$ decreases at least as rapidly as t^{-2}. The discontinuity of the function $\psi(t)$ on the negative semiaxis is purely imaginary and equals the double imaginary part of $\psi(t)$. A successive

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.

Renormalization constants and bound states in a nonrelativistic model in field theory. Zhur. eksp. i teor. fiz. 45 no.4:936-947 O '63. (MIRA 16:11)

1. Leningradskiy gosudarstvennyy universitet.

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.

Equations for vertex parts and bound states. Vest. LGU 19 no.4: 5-13 '64. (MIRA 17:3)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

ACCESSION NR: AP4019236 S/0056/64/046/002/0677/0685

AUTHOR: Braun, M. A.

TITLE: Elementary and composite particles in the Lagrangian formalism

SOURCE: Zhurnal eksper. i teor. fiz., v. 46, no. 2, 1964, 677-685

TOPIC TAGS: elementary particle, composite particle, Lagrangian formalism, independent field description, Green's function, renormalization constant

ABSTRACT: The difference between an elementary and nonelementary particle in a Lagrangian theory is investigated, with an aim of ascertaining to what extent a manifestly composite particle can be described by an independent field. Only particles whose spin allows the construction of a Lagrangian theory are included (this excludes the physical deuteron, for example). The field describing the composite particle is assumed to have a mass different from that of the composite particle, and the theory is considered in the limit as the two masses become equal. It is shown that a field for the composite

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particle cannot be introduced in the Lagrangian because the limit the Green's function of the particle and the renormalization constants become meaningless, and the amplitudes on the mass shell go over into the amplitudes of the composite particle theory (without an independent field). Some criteria for elementarity and non-elementarity of a particle are advanced. A Lagrangian formalism which treats the composite particle like an elementary particle is shown to be meaningless. At finite energies there are no qualitative features in the behavior of composite particles which distinguish them from elementary ones. The experimental data can indicate whether a particle is approximately composite only with a certain degree of error. "The author expresses his deep gratitude to Professor Yu. V. Novozhilov, L. V. Prokhorov, and I. A. Terent'yev for interesting discussions and comments" Orig. art. has: 17 formulas and 4 figures.

ASSOCIATION: Leningradskiy gosudarstvennyy universitet (Leningrad State University)

SUBMITTED: 12Jul63 DATE ACQ: 27Mar64 ENCL: 00

SUB CODE: PH NO REF SOV: 001 OTHER: 006

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.A.; VASIL'YEV, A.N.

Vertex part of NND in the low energy region and the binding energy of the deuteron. Vest. LGU 19 no.22:61-70 '64
(MIRA 18:1)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

ZIL'BERBERG, I.M.; BRAUN, M.N.

The KhA-1064-type automatic machine for drilling lubrication holes in pistons. Biul.tekh.-ekon.inform. no.11:25-26 '59. (MIRA 13:4)

(Drilling and boring machinery)

APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3"

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1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

15

Copper Steels and Chromium-Silico-Manganese Steels. M. Braun. (Metallurgist, Russia, 1936, No. 1, pp. 67–82). The author describes the results of an investigation of the mechanical properties of a number of steels. The best among the non-caschardening steels were those containing chromium (0·1–0·3%) and silicon (1·2–1·3%), and silicon (1·2–1·5%) and manganese (1·2–1·4%), with 0·3–0·7% of carbon. Steel containing manganese (0·8–1·0%), silicon (1·2–1·4%), and chromium (1–1·2%) is much improved by the addition of 0·9–1·1% of copper. In the group of steels which are suitable for caschardening the best were the following two:

Carbon 0·17–0·23%, manganese 0·8–0·9%, chromium 1·0–1·2%, and copper 0·9–1·1%; and carbon 0·17–0·23%, manganese 0·9–1·1%, silicon 0·25–0·35%, chromium 1–1·2%, and copper 0·9–1·1%. (In Russian).

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

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1ST AND 2ND ORDERS

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3RD AND 4TH ORDERS

5

19

Grain-Size in Chromium-Bearing Structural Steel. M. Braun, M. Durdo and N. Ivanov. (Kachestvennya Stal, 1937, No. 4, pp. 39–43). (In Russian). A chromium steel with 0·8–1·1% of chromium and 0·35–0·45% of carbon was used for the investigation. The laboratory tests which were carried out showed that in tensile tests the grain size had practically no effect on the mechanical properties. In the impact tests the fine-grained steel gave slightly better values than the coarse-grained steel. After normalising and after quenching, fine-grained steel had a hardness about 25% below that of the coarse-grained material. On tempering, the hardness of the coarse- and fine-grained steel was the same. Some experiments were carried out with disc-shaped specimens, which showed that fine-grained steel quenched under the laboratory conditions had a much smaller tendency to buckle. In cylindrical specimens the decrease in hardness from the surface to the centre amounted to 24·5% in coarse-grained and to 50·5% in fine-grained steel. Shafts made from the coarse-grained steel were much more readily machin and caused much less tool wear as compared with the fine-gra steel.

COMMON ELEMENTS

OPEN

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P# GROUPS

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

Ca

9

Copper steels with various additions. M. P. Braun. *Teoriya i Prakt. Met.* No. 4, 80-91(1937).—Both cementing (I) and noncementing (II) steels contg. addns. of Si, Mn, Cr, Mo and Ni were prepd. Compns. of I: C 0.15-0.27, Si 0-1.50, Mn 0.37-1.37, Cr 0-1.67, Ni 0-1.58, Cu 0-2.00, Al 0-1.10, Mo 0-0.31, P 0-0.033 and S 0-0.035%. Compns. of II: C 0.25-0.38, Si 0.35-2.17, Mn 0.57-1.50, Cr 0.12-3.00, Ni 0-1.13, Cu 0-1.61, Mo 0-0.32, P 0-0.046 and S 0-0.030%. I were hardened both at 850-950° and at 790-850°, while II were hardened at 850-900°. The tempering temps. were 180-200-300° and 180-600° for I and II, resp. The following combinations of I gave the best technological characteristics: Cr-Cu, Si-Mn-Cr, Cr-Cu-Mo, Mn-Cr-Mo, Mn-Cr-Si-Cu and Mn-Cr-Cu-Mo; the best of II were: Si-Cr, Si-Cr-Mn, Si-Mn-Cr-Cu and Mn-Cr-Cu-Mo. B. Z. K.

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Ca

9

The use of alloy steels for pinions of gear-boxes. M. P. Braun. *Teoriya i Prakt. Met.* No. 9, 65-74(1937).—The following steels were used for making the various parts of pinions: *A*(Cr-Mn-Si-Cu), *B*(Cr-Mn-Si), *C*(Cr-Mn-Si-Cu) and *D*(Mn-Si-Cu). *A* and *B* were cementing steels; *C* and *D* were noncementing steels. Mech. treatment of the various parts produced no difficulties. Heat treatment of noncementing steels and cementation and heat treatment of cementing steels were normal with no tendency for crack forming or increased warping. The microstructure of all heat treated parts showed in all cases small needle-like martensite; the depth of the cementing layer was 1.0-1.5 mm. Greatest resistance to bending was: *C* = 21,700-21,400 kg., *A* = 17,700 kg., *D* = 14,700 kg. Pinions made from Cr-Si-Cu steels similar in comp. to the described steels gave good results. Conclusions: The use of Cr-Mn-Co and Cr-Mo steels instead of Cr-Ni steels for pinions is not necessary because they do not excel the described steels. B. Z. Kanich

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18

The Use of Substitute Low-Alloy Steels at the Stalingrad Tractor Works. M. P. Braun. (Kachestvennaya Stal, 1938, No. 2, pp. 5-8). (In Russian). The author studied the properties of and suitable heat treatments for six low-alloy case-hardening and non-case-hardening steels containing small additions of chromium, manganese, silicon and copper. The properties of these steels and of the parts made of them (such as driving-pinions, gears and inlet valves) have shown that they may be regarded as substitutes for the chromium-nickel alloy steels. In one instance gear-wheels made of chromium-manganese-silicon-copper steel were found to have a greater wear resistance than similar gears made of chromium-nickel steel.

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20

Phosphorus-Bearing Steels. M. Braun and A. Karelina. (Stal, 1938, No. 6, pp. 43–48). (In Russian). The authors review some of the previous work on phosphorus-bearing steels and point out the paucity of data concerning their corrosion-resistance (Jones' work excepted). In their own investigation the authors used four steels containing up to 0·190% of phosphorus. Two of the steels also contained small additions of copper, whilst 0·021–0·040% of aluminium was present in three of the steels. The carbon content was between 0·09% and 0·16%. The steels, which had been prepared in a 30-kg. H.F. furnace, were tested in the as-rolled condition and also after normalising and after annealing. The best mechanical properties in all conditions were shown by the steel containing carbon 0·15%, manganese 0·54%, silicon 0·27%, copper 0·89%, phosphorus 0·190%, sulphur 0·022% and aluminium 0·040%. The remainder of the investigation was devoted to a study of their corrosion resistance (loss-in-weight determinations) in tap water, tap water covered by a layer of paraffin oil, N/10 potassium chloride and a solution of $NH_4Cl + HCl$. The results obtained, which were in agreement with those of previous investigators, confirm that the corrosion-resistance of the phosphorus-bearing steels is comparatively low, steels with additions of copper having the greatest resistance.

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9

Artificial atmosphere in reheating furnaces. M. P. Braun. *Stal* 8, No. 4, 71-4(1938); *Chem. Zentr.* 1938, II, 3502.—Earlier practices are reviewed. Instructions are given for the conversion of existing furnaces into furnaces operating with various artificial gas mixts. as well as for protection against CO poisoning and the deposition of soot on the metal surface. Gaseous mixts. ($N + H$, $N + CO$, etc.) with 80-90% N are recommended as the best artificial atms. M. G. Moore

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Structural constituents of steel. M. P. Braun. *Vestnik Inzhenerov Tekh.* 1939, No. 1, 45-6; *Chem. Zentr.* 1939, II, 2149-50.—The transformation of austenite into pearlite can take place in 2 directions, namely (1) by way of the laminar reaction immediately into pearlite and (2) by the needle-type reaction through an intermediate structure. The direction taken by the decompn. is detd. by the rate of reaction and the transformation of α-Fe into γ-Fe and the sepn. of C (carbide). In case of a high rate of growth troostite presents a laminar structure which is entirely similar to normal pearlite. Sorbite is globular or spherical cementite while pearlite is made up of laminae of ferrite and pearlite. All these structures are one phase although in different degrees of dispersion. Troostite is a product of hardening as well as of annealing; sorbite, on the other hand, belongs exclusively to the products of annealing of hardened steel.

M. G. Moore

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The silicon-manganese-molybdenum steels. M. P. Braun and A. Vlasov. *Teoriya Prakt. Met.* 1939, No. 2, 69-72; *Khim. Referat. Zhur.* 1939, No. 7, 83.—A steel contg. C 0.37, Mn 1.71, Si 1.57, Mo 0.30, S 0.014 and P 0.026% was investigated. The critical points were detd. on Chevenard's dilatometer in which the results were registered optically. The thermal treatment consisted of quenching oil from 880° and tempering at 180-230° for machinery parts which require steels with high degrees of strength and toughness, and with tempering at 500-650° for parts which require a good strength and toughness. The steel becomes brittle if tempered at 300-500°. The change of the hardness along the splits and fractures of the samples showed that the hardening of the steel penetrated very deeply. The macrostructure of the steel in the tempered state differs by a comparatively coarse structure with a slight porosity in the center of the section. After quenching from 880° this steel is characterized by a coarse-needle martensite structure. Martensite is quite stable. The Si-Mn-Mo steel possesses satisfactory tech. properties, especially under conditions of low tempering, after which it can be used to replace the Cu or Cr-Ni steels. For heavy-duty machinery parts this steel can replace the KhN steel. The Si-Mn-Mo combination in steels of the compn. investigated is characterized by a slightly lower limit of plastic flow (other indexes being the same). When well hardened in oil this steel is not inclined to form cracks.

W. R. Henn.

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Isothermal Decomposition of Austenite in Die Steels. M. P. Braun and L. D. Khaldinskaya. (Metallurg, 1939, No. 3, pp. 71-80). (In Russian). Four low-alloy steels of the chromium-nickel-molybdenum, chromium-tungsten-silicon and chromium-manganese-molybdenum type were studied. The decomposition of the austenite (S curves) was investigated by magnetometric and volumetric methods. The microstructures and mechanical properties after various heat treatments were determined. In conclusion the tendency to distortion (French's discs) and to cracking as a result of heat treatment was investigated. The chromium-manganese-molybdenum steel after suitable heat treatment (heating to 800° C., holding in a salt bath at 550° for 25 min., cooling in oil and finally tempering at 550°) was found to develop mechanical properties which made it appear to be a suitable substitute for chromium-nickel-molybdenum die steel.

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Molybdenum-Vanadium Steels as Substitutes for High-Speed Steel. M. P. Braun, A. M. Vlasov and R. I. Evenbakh. (Vestnik Metallopromyshlennosti, 1939, No. 9, pp. 34-39). (In Russian). The authors examined the response to heat treatment and the cutting properties of three molybdenum-vanadium steels (two containing tungsten) and compared their properties with those of 18/4/1 tungsten-chromium-vanadium tool steel. The analyses of the three steels were as follows:

	(1) %	(2) %	(3) %
Carbon	1·11	1·24	1·52
Manganese	0·43	0·24	0·72
Silicon	0·28	0·32	0·25
Chromium	4·20	4·02	4·25
Molybdenum	4·27	4·20	2·73
Vanadium	3·03	4·04	4·10
Tungsten	...	5·55	3·81

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CA

Substitutes for instrument steel. M. Braun and M. Lavrov. *Vestnik Inzhenerov i Tekh.* **1939**, No. 11, 1-2 3.—Tests were made to find substitutes for the instrument steel contg. C 0.95, Mn 0.86, Si 0.28, Cr 1.11 and V 1.31%. Measurements of the diam., length, vol., d., magnetism, and hardness after aging at 150-175° showed that the following steels having hardness of 61-63(R.) can be used as substitutes: (1) C 0.90, Mn 0.70, Si 1.38, Cr 1.02%, (2) C 1.54, Mn 0.60, Si 0.33, Cr 1.48%, and (3) C 0.85, Mn 1.00, Si 0.31%. R. Z. Kamch

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The Use of Commercial Nitrogen as a Neutral Atmosphere in Heat-Treatment Furnaces. M. P. Braun and A. M. Vlasov. (Metallurg, 1940, No. 2, pp. 47–52). (In Russian). In order to eliminate the numerous defects resulting from the heat-treatment of parts at the Stalingrad Tractor Works, it was decided to use commercial nitrogen obtained as a by-product from the near-by oxygen works. In this paper some experiments with this nitrogen are described. The oxygen (3–6%) in the commercial nitrogen was removed by passing the gas through an electrically heated retort containing carbon. The gas was first dried with charcoal or calcium chloride, and then passed through the retort (kept at a max. temperature of 850–950° C.), which in the first experiments was filled with charcoal. The exit gases were again dried, and then passed over heated copper turnings before being admitted into the heat-treatment furnace. Plain carbon and low-alloy steels were used in the experiments, in which changes of weight were recorded and decarburisation, if any, was determined by the microscopical examination of sections. The surface of the specimens in the first experiments was quite satisfactory after they had been heated for 2 hr. at temperatures of 700–950° C. All the specimens showed losses in weight and were found to have suffered con-

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18

Molybdenum-Vanadium High-Speed Steel. M. Braun. (Stal, 1940, No. 4, pp. 37–38). (In Russian). The author reports on an investigation of the cutting properties of the following molybdenum-vanadium high-speed steels which were prepared in a high-frequency furnace:

	(a)	(b)	(c)
Carbon. %	1·9	1·2	1·3
Manganese. %	0·40	0·25	0·40
Silicon. %	0·3	0·3	0·3
Chromium. %	4·2	4·2	4·2
Molybdenum. %	4·0	4·0	3·7
Vanadium. %	3·0	4·0	4·0
Tungsten. %	...	5·0	3·5

Specimens were annealed by holding for 4 hr. at 860° C., cooling to 640° C. in 2 hr., and then cooling to room temperature in air. They were then forged and quenched from 1220–1280° C. with a resulting hardness of Rockwell C 62–64. Cutting tools of steels (a) and (b) were double tempered at 520° C. and tools of steel (c) were triple tempered at 500° C. Cutting tests on alloy steels showed that all three steels were superior to high-tungsten steels in that a higher cutting speed could be obtained; steels (a) and (b) were equal and steel (c) was superior as regards life to high-tungsten steel.

Evaluation B-58834

COMMON ELEMENTS

OPEN

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Chromium manganese steel for valves M. P. Braun. *Vestnik Tekhniki* 1940, No. 5, 16. As possible substitutes for Cr-Ni valve steel the following were tested: (1) Mn 11, Cr 14 and W 2%; and (2) Mn 6, Cr 16 and Mo 3%. At 900° the first steel after hardening in oil from 1100° had a tensile strength of 17 kg./sq. mm., impact toughness of 25 kg./sq. cm. and Brinell hardness of 200-220. Its was only 18 kg. m./sq. cm. At 1000° the tensile strength was over 12 kg./sq. mm. and impact toughness over 37 kg. m./sq. cm. The Mo steel had a tensile strength of 8.5 kg./sq. mm. The heat resistance of the Cr-Mn-W steel at 900° and 1000° was close to that of the Cr-Ni steel SKhNB.

B. Z. Kanneh

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3RD AND 4TH ORDERS

B-1-4

[illegible] (manganese-steel) [illegible] [illegible], B. A. Sobolev, and A. M. Vinnov (Zavod. Lab., 1949, [illegible]).—Cleats (of caterpillar tractors) made of Mn steel should be non-magnetic. Their surface becomes magnetic in the course of heating, and the depth of the magnetic layer (martensite and troostite) can be de-

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3RD AND 4TH ORDERS

2ND LETTER

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CA

9

Introduction of high-speed Mo V steels in the tractor plant at Stalingrad. M. P. Braun. *Vestnik Metallopromy* 20, No. 4/5, 100-5(1940); *Chem. Zentr.* 1941, II, 259, cf. *C. A.* 34, 5807[1]; 35, 3210[8].—Tests of 3 high speed steels with values in %: (1) 0.9-1.1 C, 0.4 Si, 0.4 Mn, 3.5-4.5 Cr, 3-4 Mo, 3-4 V; (2) 1.1-1.25 C, 0.4 Si, 0.4 Mn, 3.5-4.5 Cr, 4-5 W, 3.5-4.5 Mo, 3-4 V; (3) 1.3-1.5 C, 0.4 Si, 0.4 Mn, 3.5-4.5 Cr, 3-4 W, 2.5-3.5 Mo, 2.5-3.5 V, show that the economical cutting velocity and stability of these steels is greater than that of 17-18% W high speed steels. In addn. the steels are 2 to 2.5 times cheaper in their manuf. than the W steels. H. Stoertz

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Chromium-manganese case-hardening steel for pinions

M. P. Braun. *Vestnik Metalloprom.* 20, No. 10, 23-5 (1940). Cr-Mn steel contg. C 0.21, Mn 0.94, Cr 0.50, Si 0.33, S 0.023 and P 0.020% is recommended for tests to det. its suitability as a substitute for more expensive alloy steels in the manuf. of pinions. The steel is easily case-hardened to a depth of 1.8 mm. and forging and heat-treatment present no difficulties. With regard to warping, the pinions showed no difference from Cr steel. B. Z. K.

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CA

9

Effect of alloy additions on grain refinement and heat resistance of steel containing 10% Al. M. P. Braun. *Vestnik Inzhenerov i Tekh.* 1940, 505; *Chem. Zentr.* 1941, II, 1080-9.—The effects of C, Mn, Ni, Co, Cu, Fe, Si, Cr, W, Mo, V, Ti, Cb + Ta and B on the properties of heat-resisting steel contg. Al 10 and C 0.1% are given. Co, V and B (0.5-1.5%) refine the cast structure, while Mn (1-5%) and Cu (1-5%) have no effect upon it. Si (1%) and Mo (up to 15%) refine the columnar crystn. Transcrystn. is avoided by Si (5%), Ti and Cb + Ta. Heat resistance is increased by Mn (over 5%), Ni and Cr, decreased by Cu (1-5%), W (1-5%) and Mo, and not affected by Co. Impact resistance is increased by B (0.5-1.5%) and decreased by C over 0.15%. Hardness is increased by Mn (over 5%), Ni (up to 1%), Cu (1-5%), W and B (0.5-1.5%). Forging properties are improved by Co (1-5%), Cu (1-5%), Ti, B and Cb + Ta. Steels contg. Mn (15%), Ni (5-15%), Co (15%), Cu (15%), Ag (up to 1%), Si (1%), Mo (15%) or V (15%) cannot be forged. H. W. Rathmann

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Ca

9

Selection of corrosion-resistant steels for fuel tanks M. P. Braun and A. G. Karelina. *Korroziya i Bor'ba s Nel* 7, No. 1, 54-8(1941); *Khim. Referat. Zhur.* 4, No. 9, 144(1941).—The resistance to corrosion of Cu-P steel (C 0.18, Mn 0.55, Si 0.30, Cu 0.80, P 0.106, S 0.022%) and Zn-plated, Pb-plated and Sn-plated Fe was tested in the course of 14 months in benzene, kerosene and tap water. Results of these lab. tests were checked under production conditions. Tractor fuel tanks can be made from steel of the compn. mentioned. Water tanks of tractors can be made from Zn-plated Fe if no Zn film is sepd. during stamping. W. R. Henn

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C4

9

Cr-Si-Mn-Mo steel as substitute for highly alloyed Cr-Ni-W steels. M. P. Braun. *Stal* 1943, No. 1/2, 61-3.—A steel contg. C 0.34, Si 1.05, Mn 6.93, Cr 16.25 and Mo 3.33% was investigated as substitute for Cr-Ni steels contg. W and Mo. Tested at 900° the new steel compared well with Cr-Ni-W-Mo steels. Optimum results are obtained when the steel is oil-hardened from 1100 to 1050°. It can be worked mechanically in a satisfactory manner after air-hardening from 1000°. The coeff. of expansion in the interval 700-900° changes insignificantly. Photomicrographs, phys. properties, etc., are given.

M. Hosch

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B

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Chrome-Manganese-Titanium and Silicon-Manganese-Molybdenum Steels. M. P. Braun. *Engineers' Digest* (American Edition), v. 3, Mar. '46, p. 132. Abstract from *Stal*, nos. 9/10, 1944, p. 89-90.

These steels were both investigated in order to ascertain whether they were suitable as substitutes for chrome-nickel, chrome-nickel-molybdenum and tungsten steels.

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Cr

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High-strength low-alloyed cementable steels. M. P. Braun and P. B. Voronov. *Mal* 6, 181-8(1940). Specimens of Cr-Mn-Mo, Cr-Mn-Cu, Cr-Mn-Si-Mo, and Cr-Mn-Si-Cu steel were studied to det. their suitability for making gears. The results of phys. tests are given. These steels were found suitable to replace Cr-Ni for making gears. Most desirable were the steels 25KhGSM (Cr-Mn-Si-Mo) and 25KhGSVa (Cr-Mn-Si-Cu). These steels had the best combination of tensile strength, fatigue resistance, elasticity, and cementability.

M. Hosch

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USSR/Metals Jan 1948
Steel, High Temperature
Steel, Chromium

"Fire Resistant Chrome-copper Silicate and Chrome-aluminum Silicate Steels," M. P. Braun, Candidate Tech Sci, UralMashZavod, 4 pp

PA 41T95

"Stal'" No 1

The heat and fire resistance of highly and moderately chrome steel was raised considerably as a result of supplementary alloying with silicon and aluminum (to which either copper or molybdenum had been added). Results were so favorable that it is quite possible that these alloys will replace chrome-nickel steel for

[redacted] 41T95

USSR/Metals (Contd) Jan 1948

the manufacture of parts which must be operated under very high temperature conditions.

[redacted] 41T95

BRAUN, M. P.

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BRAUN, M. P.

PA 32/49T57

USSR/Metals Nov/Dec 48
Steel Alloys
Carburization

"Complex Low-Alloy Steel Capable of Cementation," M. P. Braun, Cand Tech Sci, Mem, Soc of Mach Builders, 6 pp

"Vest Inzhener i Tekhnik" No 6

Treats under: (1) compositions of the steels studied, (2) dilatometer analysis of complex steel, (3) mechanical characteristics of complex steel, (4) hardenability of complex steel, (5) effect of copper, silicon, and molybdenum on cementation, (6) effect of [redacted] 32/49T57

USSR/Metals (Contd) Nov/Dec 48

depth of cementation on resilience of complex steel, and (7) susceptibility of complex steel to cold shortness.

[redacted] 32/49T57

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BRAUN, M. P.

B.T. B.M.I. 2154

M. P. Braun, Heat Resisting Chromium-Silicon and Chromium-Silicon-Aluminum Steels. STAL, vol. 8, 1948, No. 1, pp. 60-63; 2000 words.

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BRAUN, M. P. PA 19/49T75

USSR/Metals Oct 48
Steel, Structural
Steel - Properties

"40SKh-Chrome-Silicon Structural Steel," M. P. Braun, Engr, UralMashZavod, 4 pp

"Stal'" No 10

Treats subject under: (1) optimum quenching temperature, (2) effect of quenching and annealing temperatures on mechanical properties, (3) hardenability, (4) decarbonization, (5) tendency to temper brittleness, (6) testing for cold shortness, and (7) conclusions.

[redacted] 19/49T75

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BRAUN, M.P.

21760 SALOVSKIY, V.B., BOGAUEVA, G.N. i BRAUN, M.P. Vliyaniye usloviy teriueskoy na vid izloma konstruktsionnykh legirovannykh staley. V SB: Problemy konstruktsionnoy stali. M.L., 1949, S. 220-34. — Bibliogr: 14 Nazv.

SO: Letopis'Zhurnal'nykh Statey, No. 29, Moskva, 1949

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BRAUN, M.P.

PHASE I TREASURE ISLAND BIBLIOGRAPHICAL REPORT AID 366 - I

BOOK

Author: BRAUN, M. P. Call No.: TN672.V8

Full Title: THE NATURE OF STEEL FRACTURES

Transliterated Title: Priroda izloma stali

Publishing Data

Originating Agency: All-Union Scientific Engineering and Technical Society of Machine Builders. Urals Branch

Publishing House: State Scientific and Technical Publishing House of Machine Building Literature ("Mashgiz")

Date: 1950 No. pp.: 10 No. of copies: 3,000

Text Data

This is an article from the book: VSESOYUZNOYE NAUCHNOYE INZHENERNO-TEKHNICHESKOYE OBSHCHESTVO MASHINOSTROITELEY. URAL'SKOYE OTDELENIYE, THERMAL TREATMENT OF METALS - Symposium of Conference (Termicheskaya obrabotka metallov, materialy konferentsii) (p.384-393), see AID 223-II

Coverage: An extensive study of the fractural analysis of various steels is described. Samples of steel of various grades were cast, forged in rod form, and annealed before further thermal treatments necessary for the investigation.

The structural character of the fracture was studied in respect to linear dimension of the crystallic portion,

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Priroda izloma stali

AID 366 - I

geometry of the perimeter, system of lamination, shading, dislocation and its magnitude, cracks, splits and other distortions of the surface smoothness, and lastly orientation of the crystallic units.

The author also describes the mechanism of the initiation of fracture of different types. 7 fracturegraphs.

Purpose: For scientific workers
Facilities: None
No. of Russian and Slavic References: None
Available: Library of Congress.

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BRAUN, M. P. Engr

The characteristics of the chrome manganese titanium structural steel

Vest Mash p. 39, Sep. 51

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BRAUN, M.P.

Steel alloys

Basic properties of cast chrome-siliconmanganese steel modified by various elements
Vest. mash., 32, no.2 , 1952

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1. BRAUN, M. P. KURUKLIS, G. I.

2. USSR (600)

4. Steel Alloys

7. Modified low-alloy high speed steel. Vest. mash. 32no.8: Ag'52

9. Monthly List of Russian Accessions, Library ofCongress, Feb. 1953. Unclassified.

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KUZNETSOV, D.I., inzhener; KAMENICHNYY, I.S., inzhener, retsenzent; BRAUN, M.P., kandidat tekhnicheskikh nauk, retsenzent; RUBENSKIY, Ya., tekhnicheskiy redaktor

[Manual on the liquid cyaniding of tools] Pamiatka po zhidkostnomu tsianirovaniiu instrumenta. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1953. 67 p. [Microfilm] (MLRA 9:8)
(Cementation (Metallurgy)) (Cutting tools)

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"APPROVED FOR RELEASE: 06/09/2000 CIA-RDP86-00513R000206810010-3

BRAUN, M.P.; NEKRASOV, Z.I., redaktor; SHTUL'MAN, I.F., redaktor; KRYLOVSKAYA, N.S., tekhnicheskiy redaktor

[Basic properties of chrome-manganese structural steel] Osnovnye svoistva khromomargantsevoi konstruktsionnoi stali. Kiev, Izd-vo Akademii nauk Ukrainskoi SSR, 1953. 117 p. (MLRA 7:10)

1. Chlen-korrespondent AN USSR (for Nekrasov)
(Steel, Structural)

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BRAUN, M.P.; NEKRASOV, Z.I., otvetstvennyy redaktor; TITKOV, B.S., redaktor; STIVACHENKO, Ye.K., tekhredaktor

[Effect of small additions of alloys on steel fractures] Vliianie malykh dobavok legiruiushchikh elementov na izlom stali. Kiev, Izd-vo Akad. nauk USSR, 1954. 63 p. (MLRA 7:11)

1. Chlen-korrespondent Akademii nauk (for Nekrasov)
(Steel--Metallurgy)

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BRAUN, M.P.; GROZIN, B.D., professor, doktor tekhnicheskikh nauk, retsenzent; DRAYGOR, D.A., kandidat tekhnicheskikh nauk, redaktor; RUDENSKIY, Ya., tekhnicheskiy redaktor.

[Properties of structural steel in large sections] Svoistva konstruktsionnykh stalei v krupnykh secheniiakh. Moskva, Gos. nauchno-tekhn. izd-vo mashinostroit. i sudostroit. lit-ry, 1954. 65 p.
(Steel, Structural) (MLRA 7:8)

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FUKS, S.I., kandidat tekhnicheskikh nauk, dotsent; BRAUN, M.P., doktor tekhnicheskikh nauk, redaktor; LEUTA, V.I., inzhener, redaktor; RUDENSKIY, Ya.V., tekhnicheskiy redaktor

[Heat treatment of cast iron] Termicheskaia obrabotka chuguna. Kiev, Gos. nauchno-tekhn. izd-vo mashinostroit. lit-ry, 1954. 144 p.

(Cast iron) (Metals—Heat treatment) (MLRA 8:3)

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