PRICHYSTAL, J., inz.

"Wiring diagrams of radio industry products" by F. [illegible] Reviewed by J. Prichystal. [illegible] Slaboproudy obzor 26 no 3:Suppl.-lit. pages 25 no.3:L21,L23 '65.

PRICHYSTAL, Jan, inz.

International symposium on mechanical construction.
Slaboproudy obzor 25 no.4:244 Ap '64.

PRICHYSTAL, Jan, inz.

"Transistor connection technique" by H.Lenartz, W.Taeger. Reviewed by Jan Prichystal. Slaboproudy obzor 24 no.9:L69 S '63.

PRICHYSTAL, J., inz.

"Czechoslovak miniature electron tubes" by J. Deutsch, A. Kubat, J. Musil. Reviewed by J. Prichystal. Slaboproudy obzor 25 no. 2: Supplement: Literatura 25 no. 2: L9 '64.

PRICHYSTAL, Jan, inz.

"Transistors in practice" by H.Richter. Reviewed by Jan Prichystal. Slaboproudy obzor 24 no.9:Suppl.:Literatura 24 no.9:L69 '63.

PRICHYSTAL, Jan, inz.

New tasks of the Czechoslovak literature on electrical engineering. Slaboproudy obzor 24 no.3:125 Mr '63.

1. Ministerstvo vseobecneho strojirenstvi.

PRICHYSTAL, J., inz.

"Collection of formulas and propositions from physics" by K.Kostal. Reviewed by J.Prichystal. Slaboproudy obzor 24 no.2:94 F '63.

PRICHYSTAL, Jan, inz.

"Receiving electron tubes" by J.Zusanek. Reviewed by Jan Prichystal. Slaboproudy obzor 24 no.2:Suppl.:Literatura 24 no.2:L11 '63.

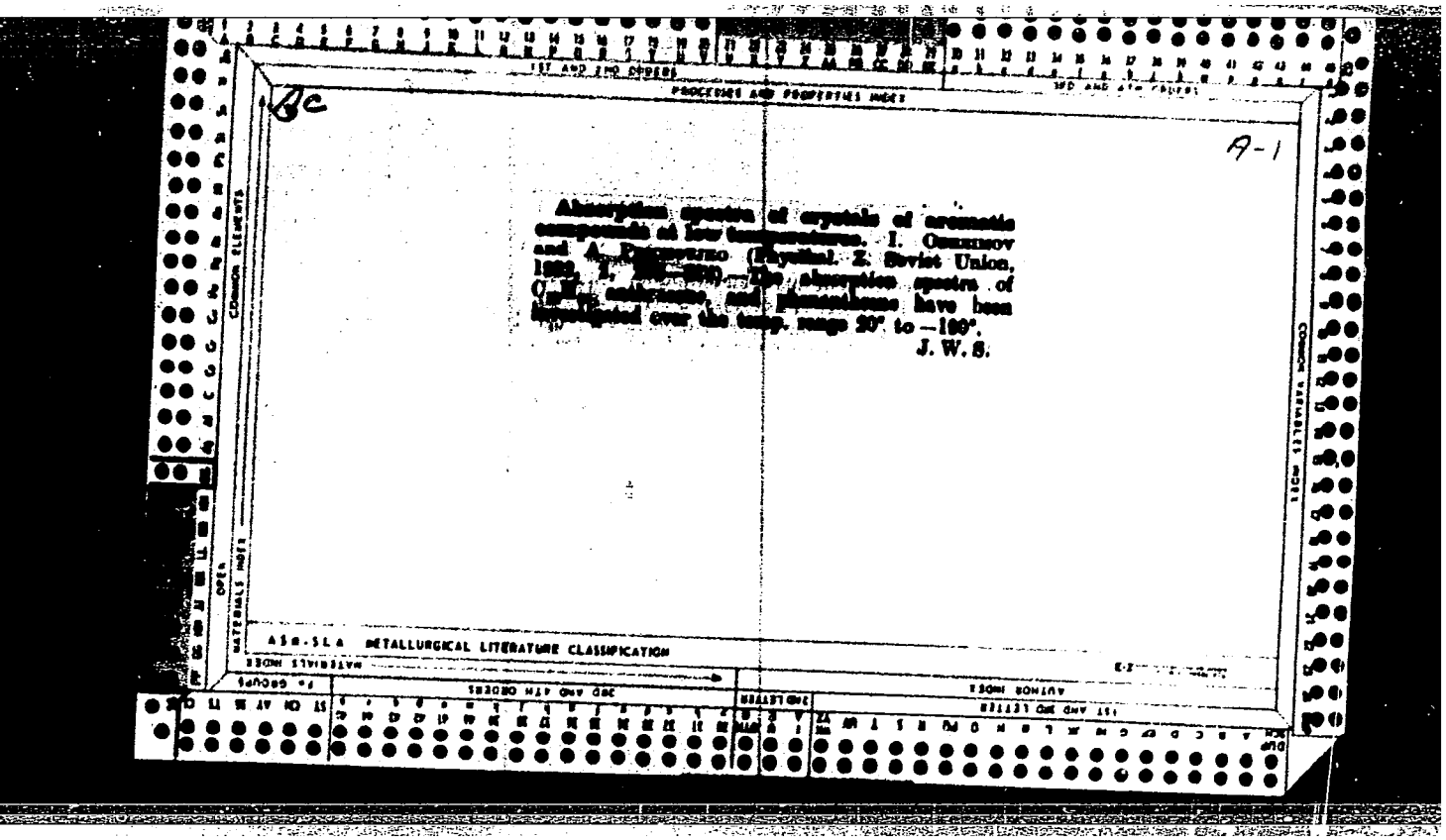
PRICHODCENKO, M.

Blowing away of deposits accumulated in combustion chambers by means of boiler water. p. 345.

ENERGETIKA. (Ministerstvo energetiky a Ceskoslovenska vedecka technicka spolecnost pro energetiku pri Ceskoslovenska akademii ved) Praha, Czechoslovakia. Vol. 9, no. 7, July 1959.

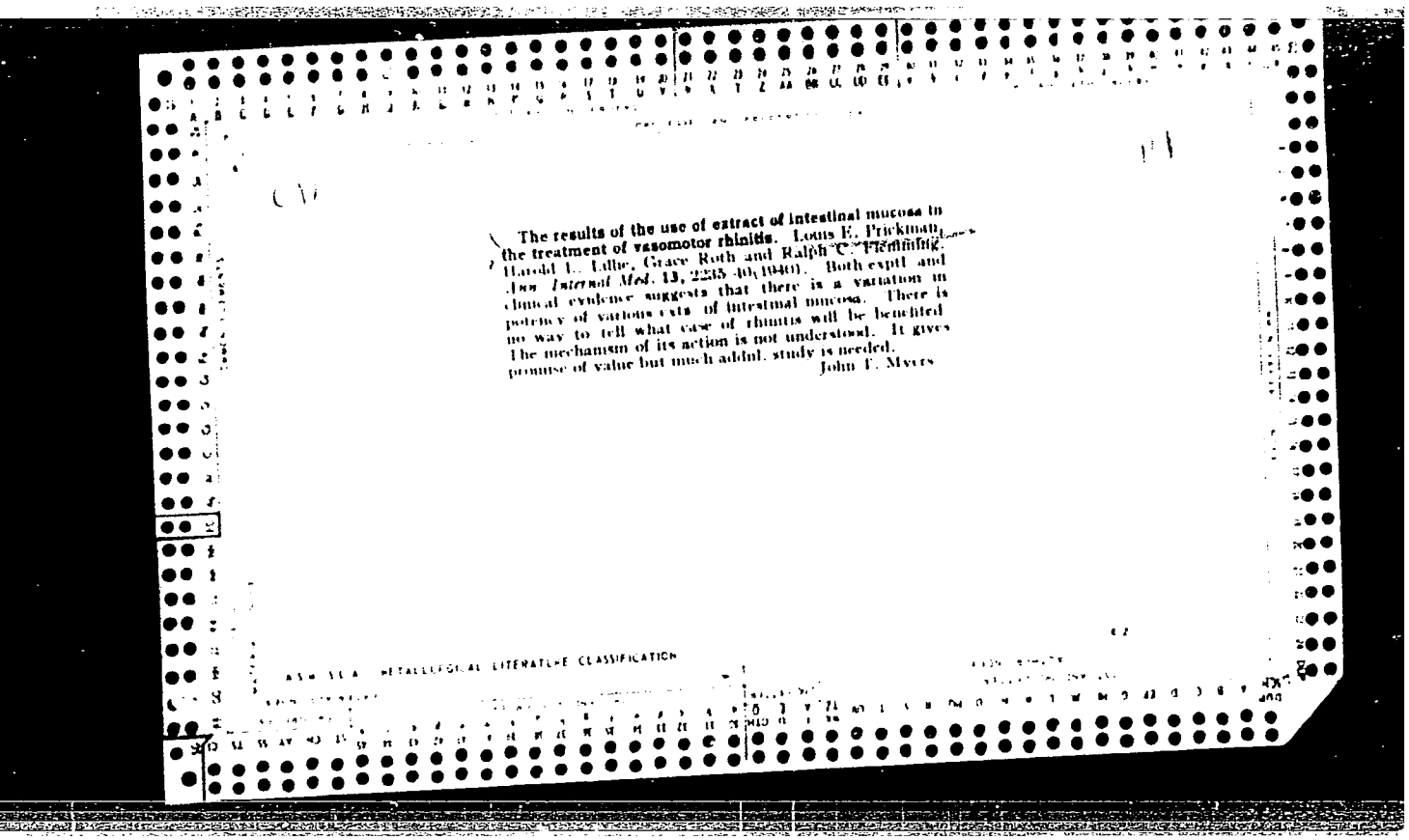
Monthly list of East European Accessions (EEAI) LC, vol. 9, no. 1, Jan. 1960.

Uncl.



PRICHYSTAL, Jan, inz.

"New designs of semiconducting devices" by J.M.Carroll. Reviewed by Jan Prichystal. Sdel tech 10 no.7:279-280 Jl '62.



The results of the use of extract of intestinal mucosa in the treatment of vasomotor rhinitis. Louis E. Prickman, Harold L. Lillie, Grace Roth and Ralph C. Hemmings. *Ann. Internal Med.* 13, 2235-40(1940). Both exptl. and clinical evidence suggests that there is a variation in potency of various exts. of intestinal mucosa. There is no way to tell what case of rhinitis will be benefited. The mechanism of its action is not understood. It gives promise of value but much addnl. study is needed.
John F. Myers

JEVTIC, Zivojin; TVRTKOVIC, Rifat; PRICIC, Mithat; TRNINIC, Borivoje

3 Cases of Pierre-Marie-Bamberger disease. Srpski arh. celok. lek. 89 no.10:1207-1212 O '61.

1. Hirurska klinika Medicinskog fakulteta Univerziteta u Sarajevu Upravnik: prof. dr Feodor Lukac.

(OSTEOARTHROPATHY HYPERTROPHIC PULMONARY case reports)

5

PRICOP, E., ing.

Only good and very good qualifying appreciation. Constr Buc 14 no.651:1 30 Je '62.

1. Seful santierului Suceava al I.C.M.B.

PRICOP, Emil, ing.

Prepared in time. Constr Buc 14 no. 675: 3 15 December 1962.

1. Seful santierului de lucrari speciale-Suceava al I.C.M.B.

PRICOP, Gh., ing.; TESU, Gh., ing.; PRICOP, T., ing.

Use of explosives in the building of irrigation and draining canals. Hidrotehnica 6 no.11:380-387 N '61.

(Irrigation) (Explosives in agriculture)

PRICOP, Gh., ing.; IONITOAIA, H., ing.; LEU, D., ing.

Considerations on the drinkable and irrigation subterranean waters in the Danube Delta, between Calarasi and Braila. Hidrotehnica 7 no.5:158-161 My '62.

PRICOP, Gh., ing.

Considerations on the subterranean water utilization in the irrigation works in Rumania. Hidrotehnica 7 no.10:351-357 O '62.

CIOCIRDEL, Fl., ing.; PRICOP, Gh., ing.; TUDOR, C., ing.

Filters for water wells. Gravel filters whose surface is consolidated with bakelike binder. Hidrotehnica 7 no.3:85-89 Mr '62.

PRICOP, Gh., ing.; TESU, Gh., ing.; PRICOP, T., ing.

Use of explosives in the execution of irrigation canals. Hidrotehnica 6 no.11:380-387 N '61.

PRICOP, Gh., ing.; TESU, Gh., ing.; PRICOP, T., ing.

Use of explosives in the building of irrigation and draining canals. Hidrotehnica 6 no.11:380-387 N '61.

(Irrigation) (Explosives in agriculture)

PRICOP, Gh., ing.; TESU, Gh., ing.; PRICOP, T., ing.

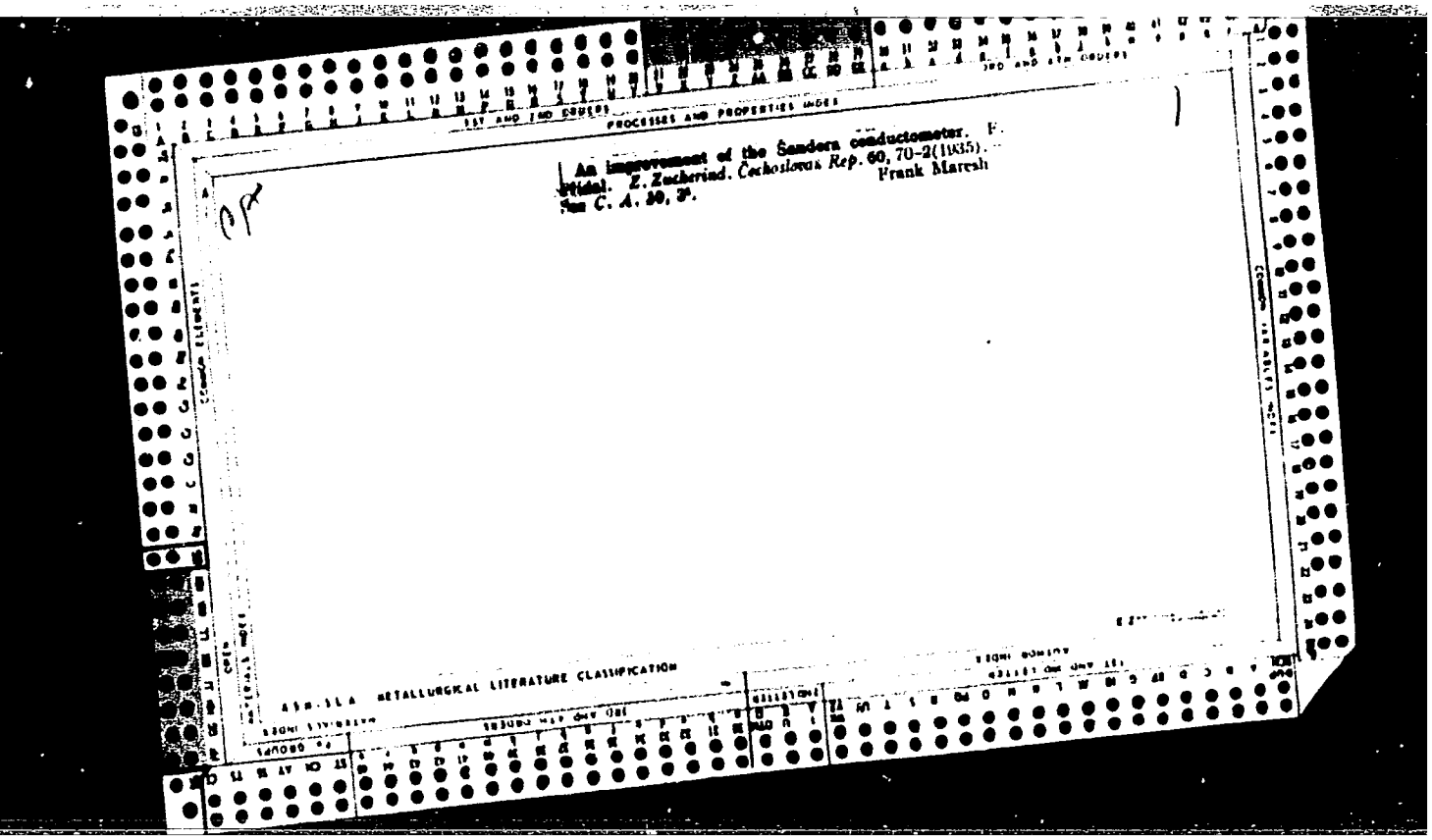
Use of explosives in the execution of irrigation canals. Hidrotehnica 6 no.11:380-387 N '61.

PRICOPIE, L.:; BANCILA, M.

Extension of the floating volume in the Cosna River basin and the dimensioning of the Cosnita Weir. p. 458

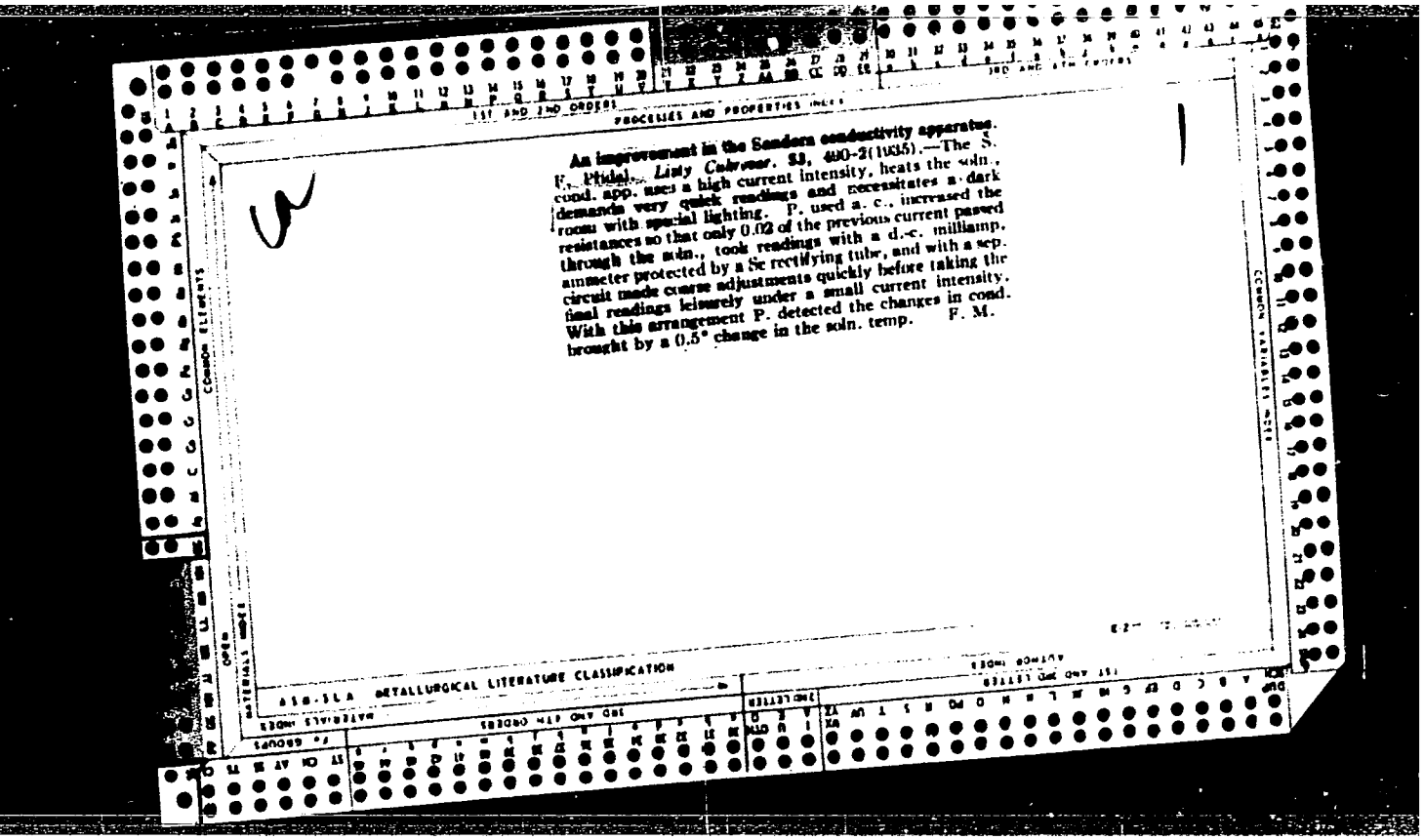
(REVISTA PODURILOR Vol. 71, No. 7, July 1957. Bucuresti, Rumania)

SO: Monthly List of East European Accessions (EEAL) LC. Vol. 6, No. 10, October 1957. Uncl.

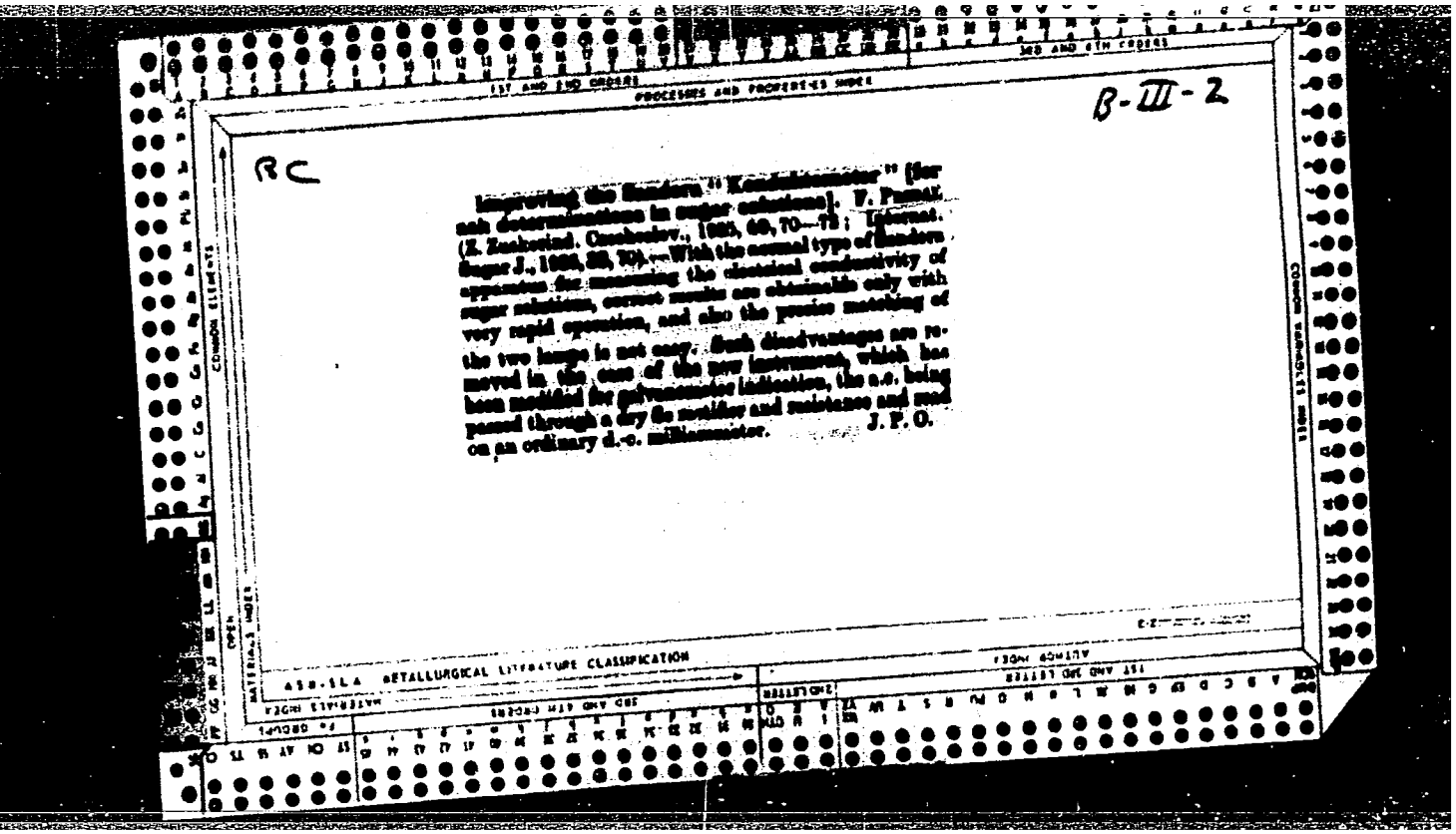


An improvement of the Sanders conductometer. F.
Zacherlová. Czechoslovak Rep. 60, 70-2(1935).
Frank Marsh
Chem. C. A. 30, 7.

METALLURGICAL LITERATURE CLASSIFICATION



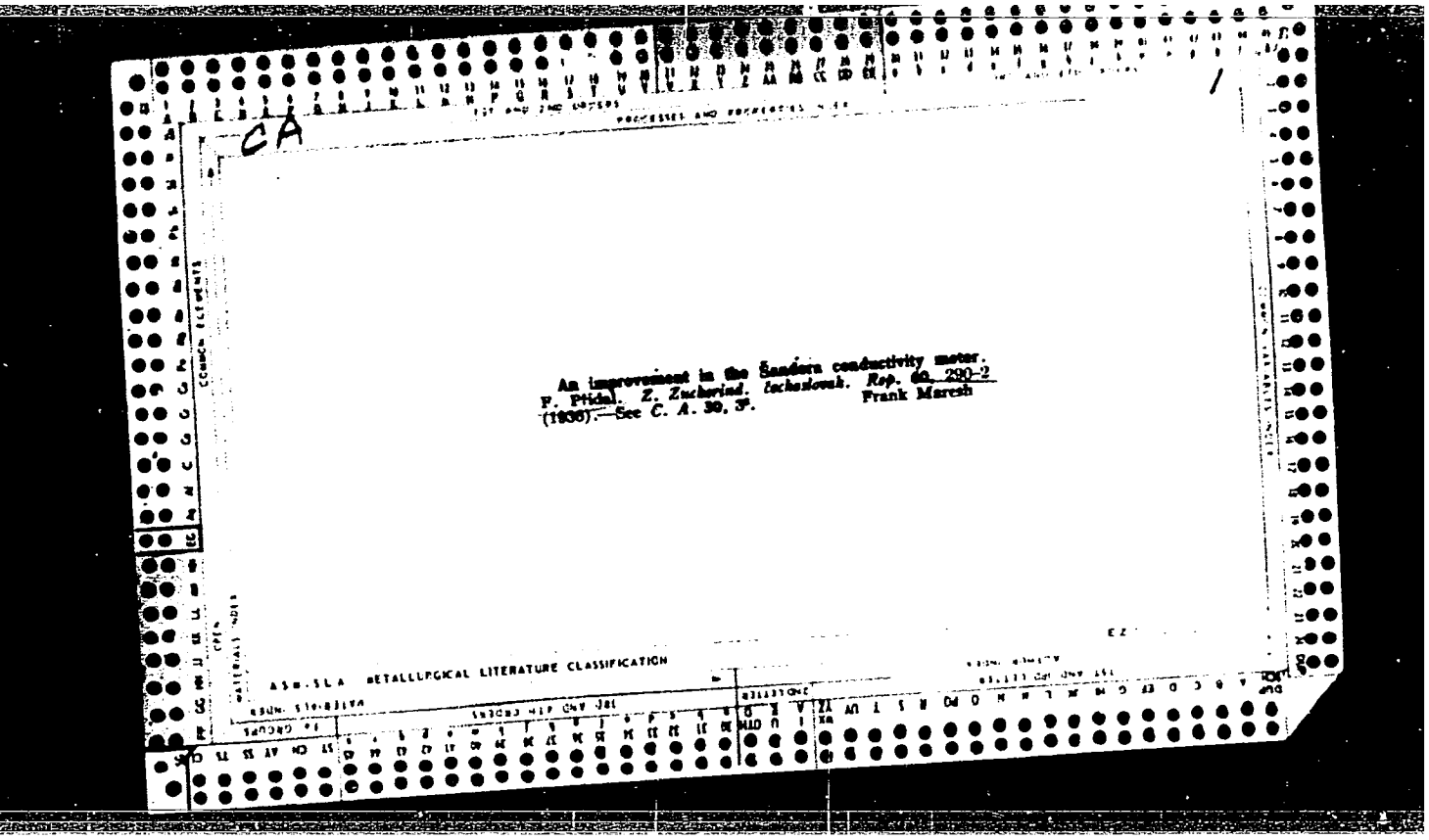
An improvement in the Sanders conductivity apparatus. F. Hidal. *Lista Cukrovar.* **53**, 480-2(1935).—The S. cond. app. uses a high current intensity, heats the soln., demands very quick readings and necessitates a dark room with special lighting. P. used a. c., increased the resistances so that only 0.02 of the previous current passed through the soln., took readings with a d.-c. milliamp. ammeter protected by a Se rectifying tube, and with a sep. circuit made coarse adjustments quickly before taking the final readings leisurely under a small current intensity. With this arrangement P. detected the changes in cond. brought by a 0.5° change in the soln. temp. F. M.



B-III-2

RC

Improving the Kandern "Kondiktometer" [for salt determinations in sugar solutions]. V. Pennit. (Z. Zuckerind. Czechoslov., 1955, 80, 70—73; Chemist. Zentr. J., 1955, 29, 704.—With the normal type of Kandern apparatus for measuring the electrical conductivity of sugar solutions, correct results are obtainable only with very rapid operation, and also the precise matching of the two lamps is not easy. Both disadvantages are removed in the case of the new instrument, which has been modified for galvanometer indication, the a.c. being passed through a dry Se rectifier and resistance and read on an ordinary d.c. milliammeter. J. F. O.



An improvement in the Sanders conductivity meter. P. Ptáček, Z. Zacharias, Czechoslovak. Rep. 60, 290-2 (1936).—See C. A. 30, 3°. Frank Maresh

G-2

COUNTRY : Czechoslovakia
CATEGORY : Organic Chemistry--Synthetic organic chemistry

ABS. JOUR. : RZKhim., No. 16 1959, No. 57159

AUTHOR : Novotny, A., Brezik, Z., Pridal, J., and *
INST. : Not given
TITLE : On the Application of 1,3,4-Oxadiazoles in the Chemotherapy of Tuberculosis

ORIG. PUB. : Ceskoslov Farmac, 7, No 9, 517-520 (1958)

ABSTRACT : The authors have synthesized 2-(pyridyl-4)-4,5-dihydro-1,3,4-oxadiazolone-5 (I) and 2-cyanomethyl-4,5-dihydro-1,3,4-oxadiazolone-5 (II) as well as 2-R-5-(4-pyridyl)-1,3,4-oxadiazoles with R = H (IIIa), CH_3 (IIIb), and C_2H_5 (IIIc) and have investigated the antituberculous properties of the above compounds. I and II are prepared by condensing isonicotinic acid hydrazide (IV) and $NCCH_2CONHNH_2$ (V) ('reazid') with $COCl_2$. IIIb and IIIc are obtained in small

*Kalfus, K.

CARD: 1/9

COUNTRY : Czechoslovakia
CAT'GORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 47159

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : yields by the dehydration of the corresponding N-isonicotinyl-N'-acylhydrazines with P_2O_5, $POCl_3$, and, in the case of IIIb, by azeotropic dehydration at temperatures below 270° (decomp) in aromatic ethers, neroiin or, preferably, $(C_6H_5)_2O$. The application of $SOCl_2$, $COCl_2$, or 5% oleum gives inferior results. IIIa could be prepared only by the method described (RZhKhim, No 7, 1956, 19295), yield 80%, mp 120-121° (from alc). For the preparation of the above-indicated

CARD: 2/9

136

COUNTRY : Czechoslovakia
CATEGORY :

57159

ABS. JOUR. : RZKhim., No. 16 1959, No.

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : diacylhydrazines the authors have developed a procedure based on the acylation of IV by carboxylic acid anhydrides in water which excludes polyacylation and the production of colored impurities; a procedure has also been developed for the formylation of IV and V by 66-80% HCOOH. The antitubercular activity of I in vivo is equal to that of IV, and II is equivalent to V. The activity of III in vitro is small; the in vivo tests are still in process. 0.6 mol $COCl_2$

CARD: 3/9

G-2

COUNTRY : Czechoslovakia
CATEGORY :
ABS. JOUR. : RZKhim., No. 16 1959, No. 57159
AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : is passed through (0-5°, 75 min) a solution of 0.1 mol IV in 100 ml water at pH ≤ 6, the mixture is neutralized to pH 5.5-6 with 50% KOH, and filtered; the yield of I is 90%, mp 275.9-276.1° (from water or from 4 : 1 C_5H_5N-ethyl acetate). II is prepared by an analogous procedure, yield 88%, mp 162.2-162.3° (from alc). 0.1 mol IV is mixed with 0.6 mol 80% HCOOH and the mixture is evaporated under vacuum after 8 hrs to give N-formyl-N'-isonicotinylhydrazine,

CARD: 4/9

G-2

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : AZKhim., No. 16 1959, No. 57159

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : yield 83%, mp 141.2-141.7° (from butyl acetate). A mixture of 0.05 mol V and 0.2 mol 80% HCOOH is treated with 12 ml alcohol and left to stand 15 hrs at 4°; N-formyl-N'-cyanoacetylhydrazine is obtained, yield 68.5%, mp 153.2-153.8° (from alc). 0.1 mol IV is treated without cooling with 18 ml water and 0.125 mol $(CH_3CO)_2O$, the solution is evaporated at 90-95°/10 mm, and N-acetyl-N'-isonicotinylhydrazine (VI) is isolated, yield 91%, mp 162.2-162.5° (from butyl

CARD: 5/9

COUNTRY : Czechoslovakia
CATEGORY :
ABS. JOUR. : RZKhim., No. 16 1959, No. 57159
AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : acetate). By a similar procedure, N-propionyl-N'-isonicotinylhydrazine (VII) is obtained from IV and $(C_2H_5CO)_2O$, yield 91%, mp 130.2-130.4°, and N-butyryl-N'-isonicotinylhydrazine (VIII) is prepared from IV and $(n\text{-}C_3H_7CO)_2O$, yield 90-91%, mp 140.1-140.3° (from 2 : 1 ethyl acetate-C_5H_5N). 0.03 mol VI is ground with 0.035 mol P_2O_5 with careful heating (100-130°), the mixture is dissolved in 100 ml water and soda is added to pH 8-9, after which the solution is

CARD: 6/9

/38

G-2

COUNTRY : Czechoslovakia
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1955, No. 57159

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : evaporated to dryness (90-95°/10 mm), the residue is extracted with pyridine in a Soxhlet apparatus, and the extract is cooled (4°, 15 hrs) to give IIIb, yield 26%, mp 150.5-151° (from alc). 0.03 mol VI is refluxed with 0.055 mol $POCl_3$ in 50 ml C_6H_6 for 105 min, the C_6H_6 is distilled off, and the residue is treated as in the preceding case; the pyridine extract, evaporated to 15-20 ml, is refluxed for 30 min with 50 ml alcohol (in the presence of charcoal) to

CARD: 7/9

COUNTRY : Czechoslovakia G-2
CATEGORY :

ABS. JOUR. : RZKhim., No. 16 1959, No. 57159

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : give IIIb, yield 23.4%. IIIc is prepared from VII by a similar procedure, yield 36% (with P_2O_5), 29% (with $POCl_3$), mp 56-58.5° (from alc). 0.25 mol VI is refluxed for 170 min with 9.0 ml $(C_6H_5)_2O$ (0.65 ml water is distilled off), the cooled mixture is poured into 50 ml water, shaken, and extracted with ether, the aqueous layer is evaporated to dryness and the residue is extracted with 10 ml boiling C_6H_6 to give IIIb, 15-20% (pure); the C_6H_6 insoluble residue is an unidenti-

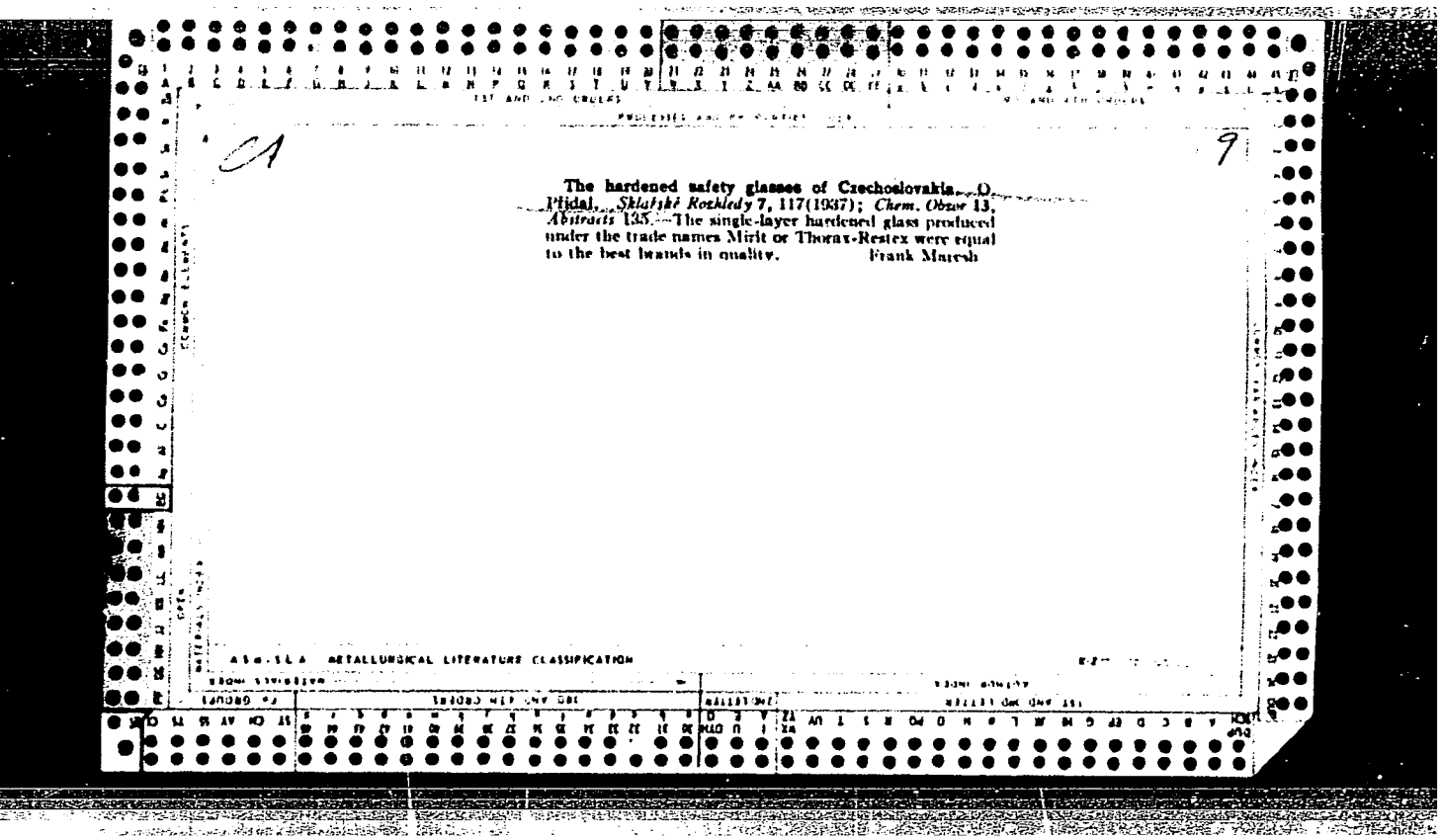
CARD: 8/9

COUNTRY	: Czechoslovakia	G-2
CATEGORY	:	
ABS. JOUR.	: RZKhim., No. 16 1959, No.	57159
AUTHOR	:	
INST.	:	
TITLE	:	
ORIG. PUB.	:	

ABSTRACT : fied substance with mp 263-264° (from slc). III with R = n-C_6H_5, could not be prepared by the dehydration of VIII with $POCl_3$. All mp's are corrected.

A. Tochilkin

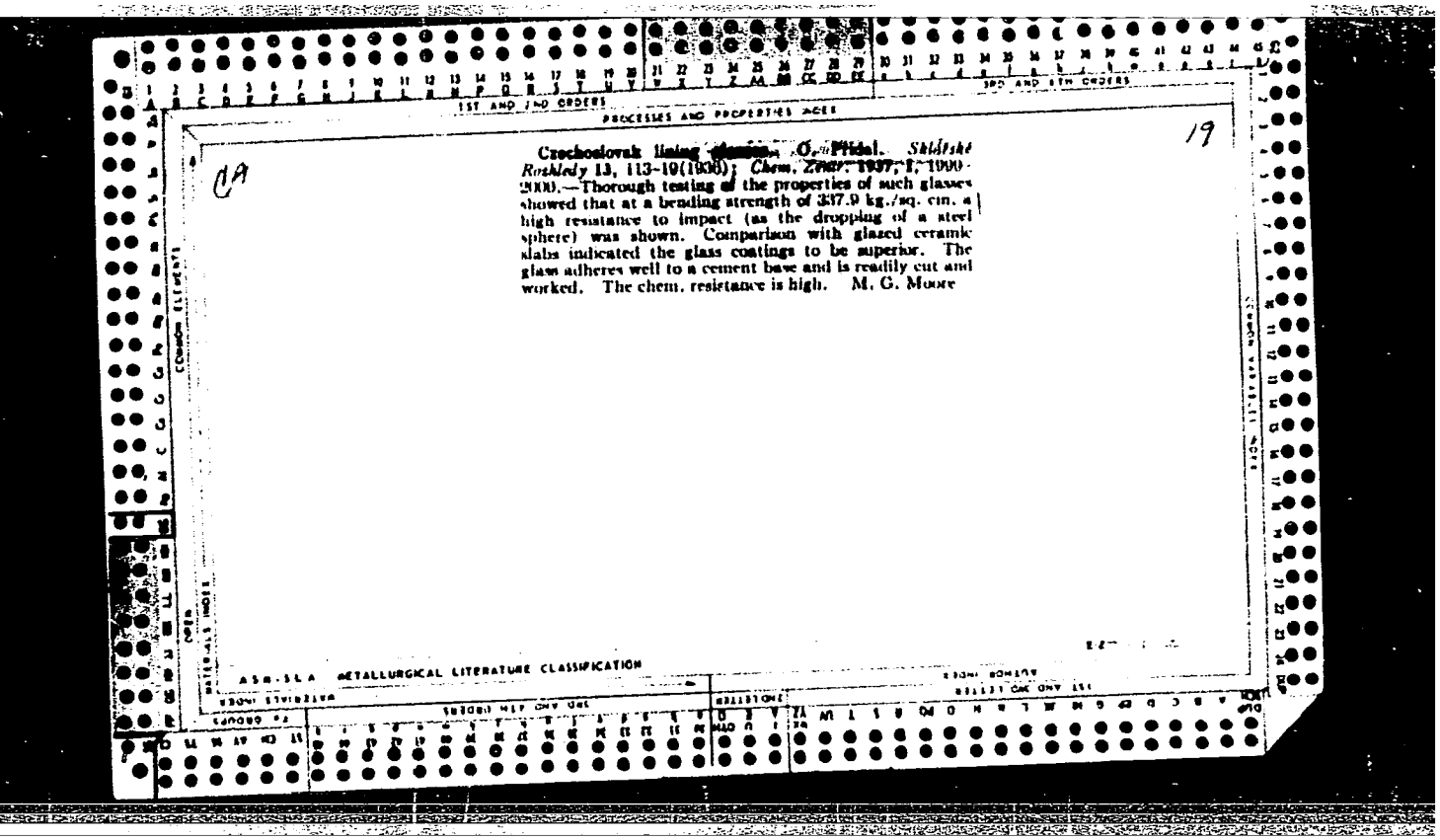
CARD: 9/9



C1

9

The hardened safety glasses of Czechoslovakia. O. Přidal. *Sklařské Rozhledy* 7, 117(1937); *Chem. Obzor* 13, *Abstracts* 135.—The single-layer hardened glass produced under the trade names Mirit or Thorax-Restex were equal to the best brands in quality. Frank Marsh

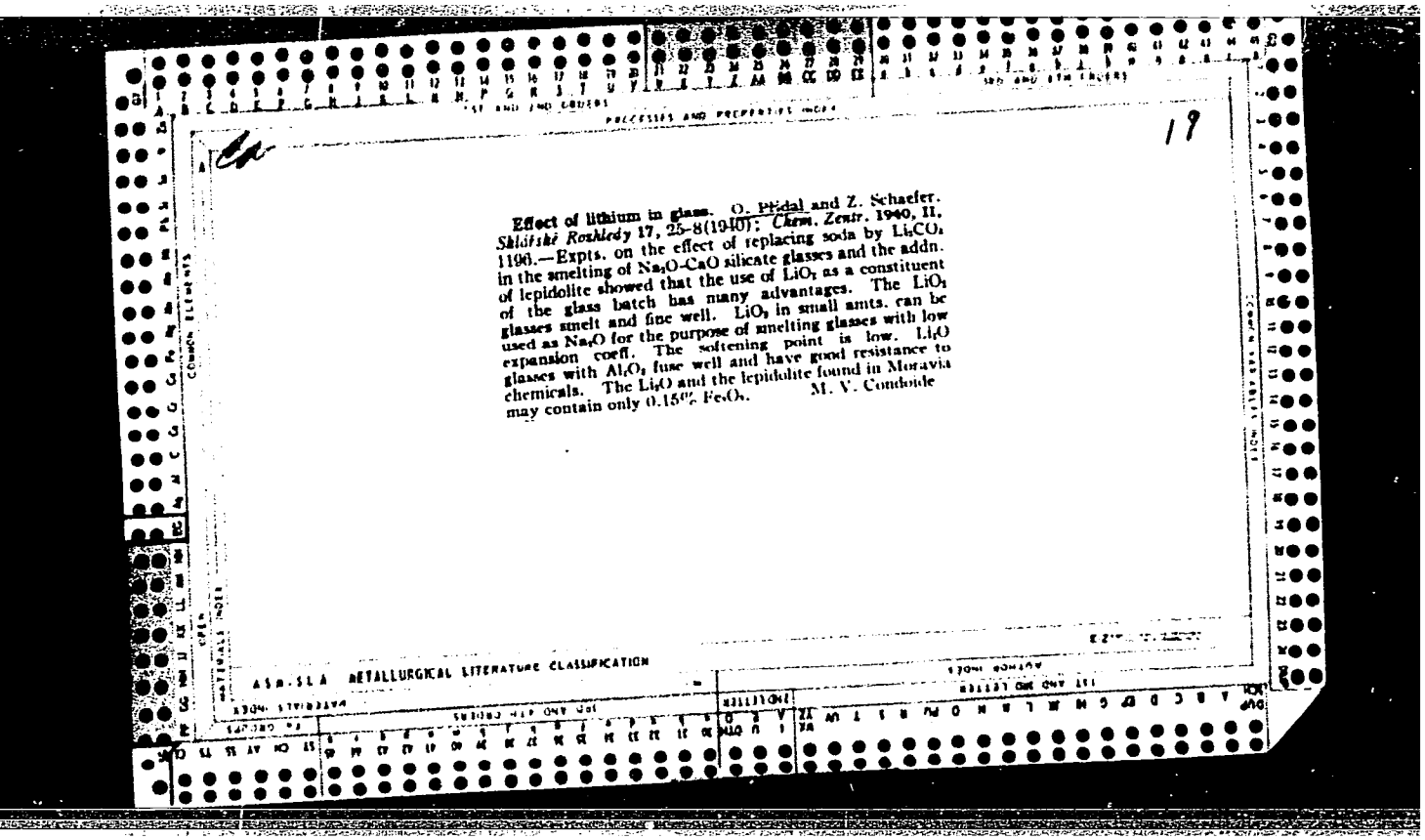


1A

19

Czechoslovak lining [illegible] O. Pfidal. *Stáfirské Rozhledy* 13, 113–19(1936); *Chem. Zentr.* 1937, I, 1990–2000.—Thorough testing of the properties of such glasses showed that at a bending strength of 337.9 kg./sq. cm. a high resistance to impact (as the dropping of a steel sphere) was shown. Comparison with glazed ceramic slabs indicated the glass coatings to be superior. The glass adheres well to a cement base and is readily cut and worked. The chem. resistance is high. M. G. Moore

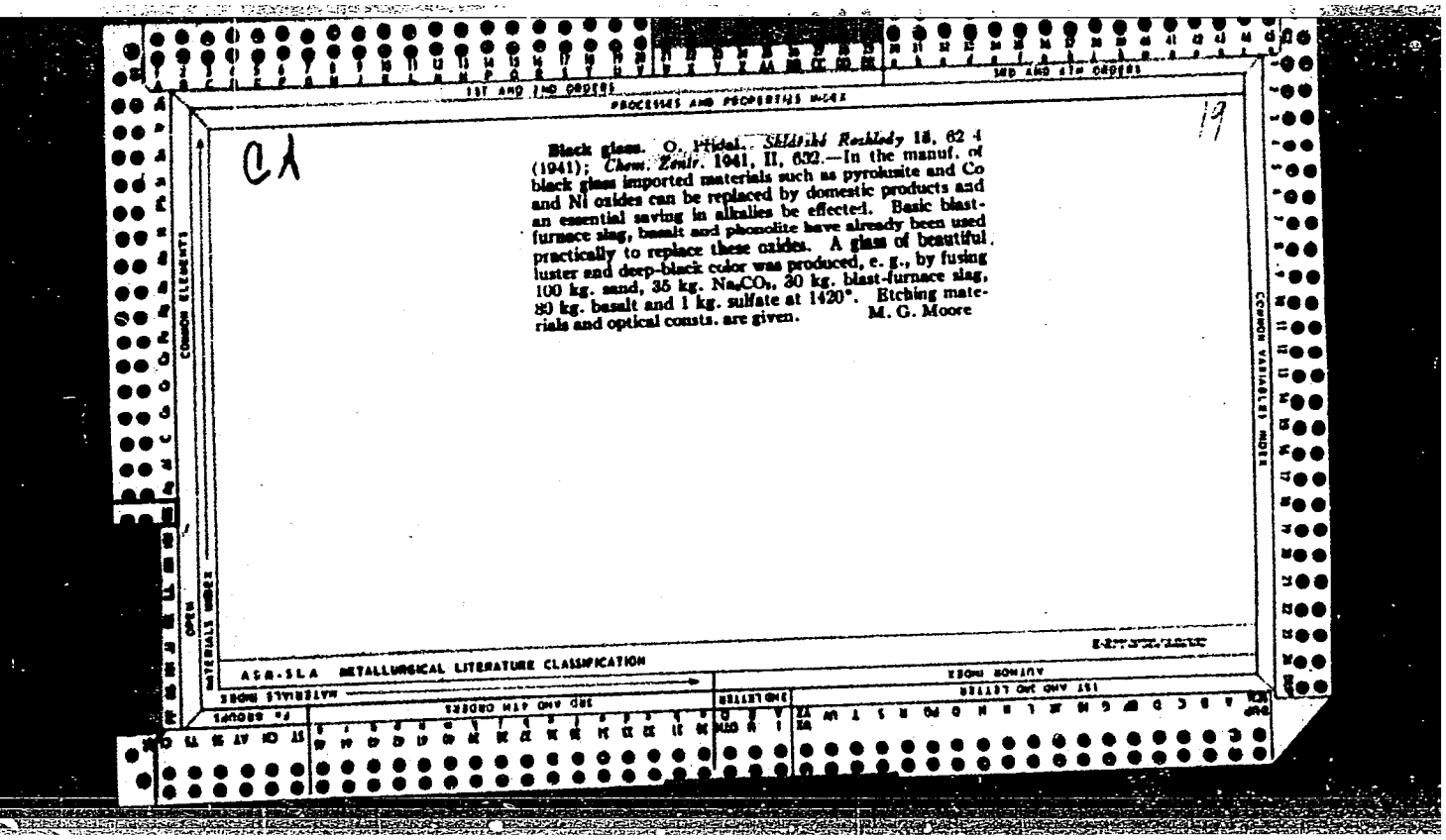
Tin chloride substitutes in the production of mirrors. O. Pikal. *Shidpikl Rushkdy*, 20 [4] 5 pp. (1943) -- Titanium trisulfate ($Ti_2(SO_4)_3$) was found to be a suitable substitute for stannous chloride solution ($SnCl_2 2H_2O$) for pretreating glass surfaces before chemical silvering. The optimal concentration was 0.04 to 0.08% $Ti_2(SO_4)_3$. For large-scale operation, 5 cc. of a titanium trisulfate solution was diluted with 2.5 to 3 liters of H_2O. Titanium trisulfate was available at the same price level as stannous chloride. Four other substitutes showed favorable results but did not perform as well as titanium trisulfate: (1) hydrazine hydrochloride, (2) hydrazine sulfate, (3) hydroxylamine, and (4) titanium trichloride. N. J. K.



19

Effect of lithium in glass. O. Přídal and Z. Schaefer. *Sklářské Rozhledy* 17, 25–8(1940); *Chem. Zentr.* 1940, II, 1196.—Expts. on the effect of replacing soda by Li_2CO_3 in the smelting of Na_2O-CaO silicate glasses and the addn. of lepidolite showed that the use of LiO_2 as a constituent of the glass batch has many advantages. The LiO_2 glasses smelt and fine well. LiO_2 in small amts. can be used as Na_2O for the purpose of smelting glasses with low expansion coeff. The softening point is low. Li_2O glasses with Al_2O_3 fuse well and have good resistance to chemicals. The Li_2O and the lepidolite found in Moravia may contain only 0.15% Fe_2O_3. M. V. Condoide

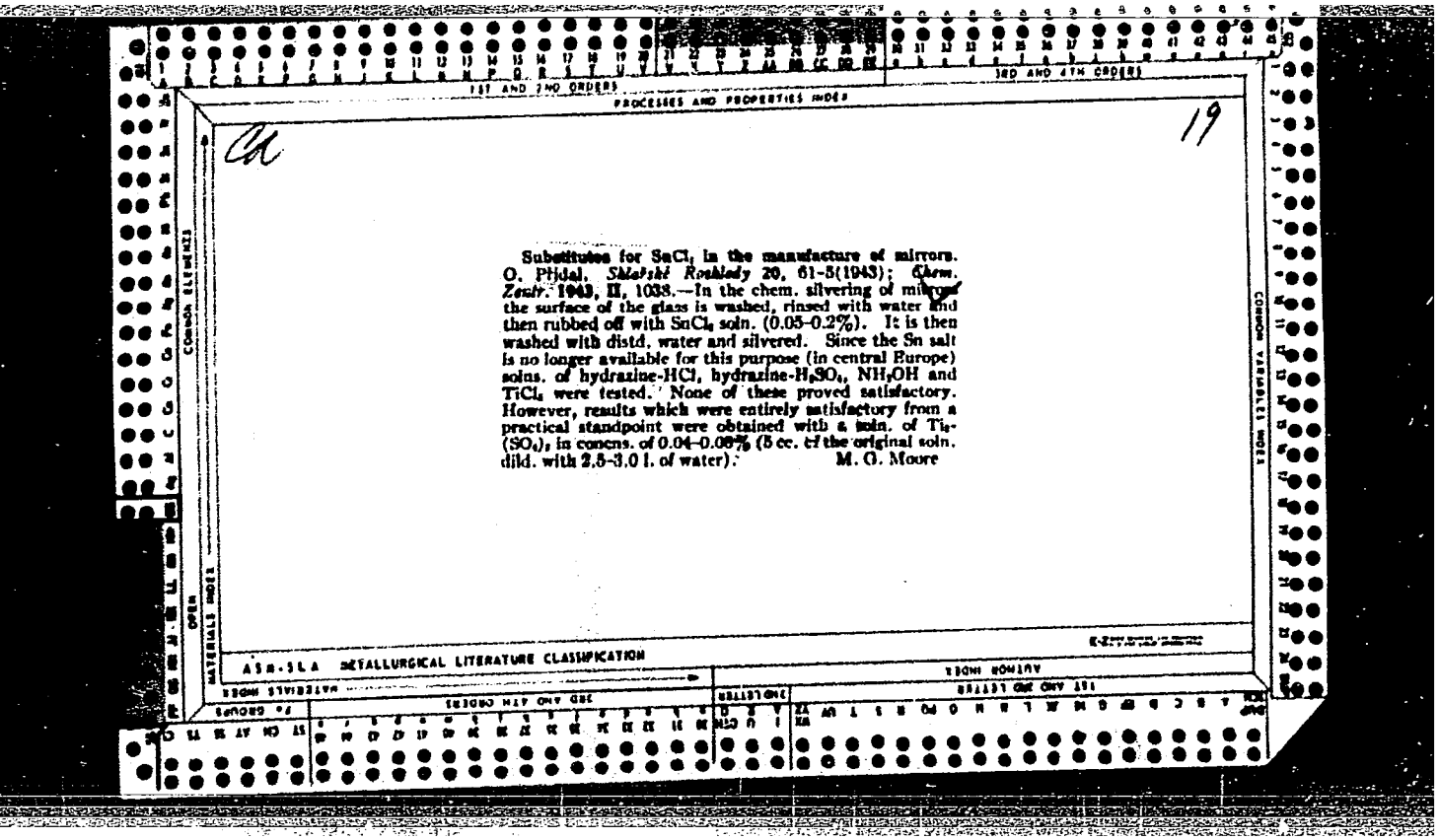
ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION



C1

19

Black glass. O. Tridal. *Skláři a Keramik* 15, 62-4 (1941); *Chem. Zentr.* 1941, II, 632.—In the manuf. of black glass imported materials such as pyrolusite and Co and Ni oxides can be replaced by domestic products and an essential saving in alkalies be effected. Basic blast-furnace slag, basalt and phonolite have already been used practically to replace these oxides. A glass of beautiful luster and deep-black color was produced, e. g., by fusing 100 kg. sand, 35 kg. Na_2CO_3, 30 kg. blast-furnace slag, 80 kg. basalt and 1 kg. sulfate at 1420°. Etching materials and optical consts. are given. M. G. Moore



19

Substitutes for $SnCl_4$ in the manufacture of mirrors. O. Pfidal. *Skla'ské Rozhledy* 20, 61-5(1943); *Chem. Zentr.* 1943, II, 1038.—In the chem. silvering of mirrors the surface of the glass is washed, rinsed with water and then rubbed off with $SnCl_4$ soln. (0.05-0.2%). It is then washed with distd. water and silvered. Since the Sn salt is no longer available for this purpose (in central Europe) solns. of hydrazine-HCl, hydrazine-H_2SO_4, NH_4OH and $TiCl_4$ were tested. None of these proved satisfactory. However, results which were entirely satisfactory from a practical standpoint were obtained with a soln. of $Ti_2(SO_4)_3$ in concns. of 0.04-0.08% (5 cc. of the original soln. dild. with 2.5-3.0 l. of water). M. G. Moore

1ST AND 2ND ORDERS

PROCESSES AND PROPERTIES INDEX

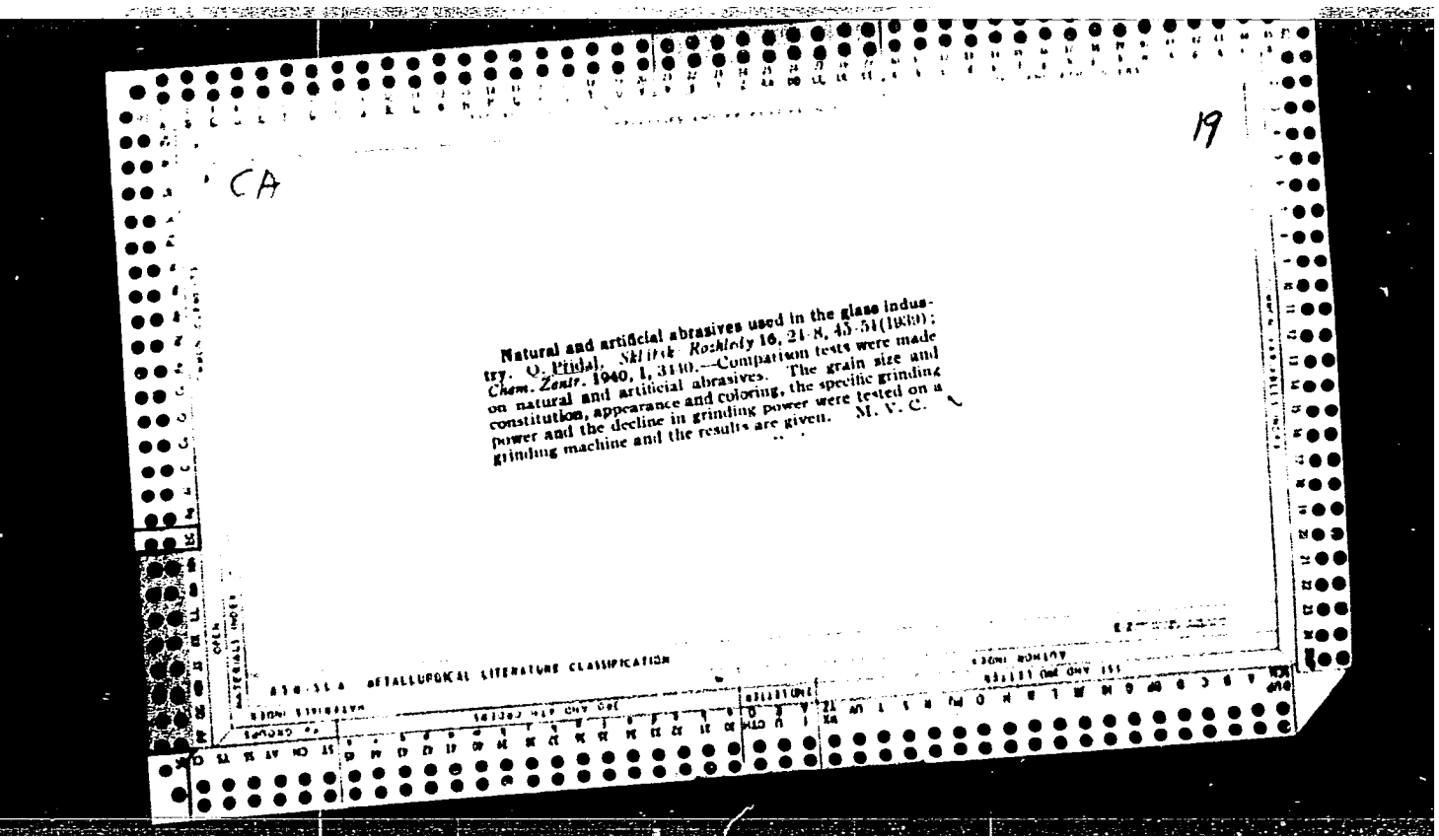
Thermal control apparatus. O. Přibal. *Sklarske* 1930, 503, *Trans. Czechoslov Ceram. Soc.* No. 1(1930); *Ceram. Abstracts* 10, 514. P. describes an app. for rapid analysis of smoke gases designed by F. Staněk. This app. is based on the principle of gas absorption by chem. agents. It is provided with a gas-sucking device, works without pressure wa[illegible] and is driven by a small elec. motor. G. G.

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

Bv. Cds

B1-9 Glass; Ceramics; Refractories.

Glass colouring by nickel oxide. O. Prdal (Silikat Rundsch., 1941, 18. 77—84; Glastech., 1942, 78. No. 29—30. 175—176; Bull. Brit. sci. Instrum. Res. Ass., 1940, 6. 56).—The relation between colour and base-glass composition was determined in a series of glasses containing 0·25% of NiO. R. B. CLARKE



CA

19

Natural and artificial abrasives used in the glass industry. O. Pfridal. *Silikat. Roshledy* 16, 21-8, 45-51(1939); *Chem. Zentr.* 1940, I, 3110.—Comparison tests were made on natural and artificial abrasives. The grain size and constitution, appearance and coloring, the specific grinding power and the decline in grinding power were tested on a grinding machine and the results are given. M. V. C.

A.C.S.

Glass

Black glass. Q. Pikmal. *Skláři a Keramik*, 18 [4] 62-64 (1941).—P. proposes more economic batches for black glass during wartime on the basis of a survey of the literature and experimental evidence. A basic slag containing about 30 SiO_2, 15 Al_2O_3, 0.8 Fe_2O_3, 1.25 MnO, 47 CaO, 5 MgO, and 1.5% S and basaltic and phonolitic materials are recommended. The latter contain much Fe_2O_3 and some MnO. Basalt comprises 39 SiO_2, 1.5 TiO_2, 13 Al_2O_3, 19 Fe_2O_3, 0.5 MnO, 12.5 CaO, 7 MgO, 1.5 K_2O, and 5% Na_2O. Phonolite contains 60 SiO_2, 21 Al_2O_3, 3 Fe_2O_3, 0.5 MnO, 1.5 CaO, 0.5 MgO, 8 Na_2O, 5.5 K_2O, and 4% H_2O. Examples of experimental glasses melted and tested are given in the table, glass III being particularly interesting

	I	II	III
Sand	38	28	
Slag	11	11	20
Basalt	28	28	10
Potash (70%)	6		
Soda ash (98%)	7	18	
Sodium sulfate	1	1	
Phonolite			80
Melting temp. (°C.)	1380	1340	1420
Lin. coeff. expansion 100°-400°C. ($\times 10^{-7}$)	82.5	98.0	91.5
Softening point	585	560	640
Working quality			Difficult

N.J.K. & M.V.C.

A. C. S.

Resistant substitute glasses. [illegible] *Rubber*, 18 [9, 10] 184 87 (1941). While B_2O_3 was unavailable the Bohemian (Kavalier) laboratory glass containing 7.8% B_2O_3 and the Jena glasses containing 7 to 15% B_2O_3 were replaced by new glasses in which equal chemical resistance and expansion were obtained by combinations of Al_2O_3, ZnO, CaO, and a large amount of MgO. In all cases higher melting temperatures and longer melting times had to be accepted. The RO and R_2O_3 contents of the new glasses and the properties obtained are as follows:

	Glass No.								
	1	2	3	4	5	6	7	8	9
B_2O_3	7.8	4.9	4.8	4.8	4.0	1.7			
Al_2O_3	12.6	13.4	16.3	18.6	13.2	14.1	9.4	9.4	15.2
ZnO					2.2	6.2	9.6	8.9	7.8
CaO	6.0	6.0	6.3	3.0	6.0	3.9	3.0	3.0	3.9
MgO	12.0	12.0	12.0	12.0	12.0	11.9	11.9	11.9	11.7
Calc. α 0–100° ($\times 10^{-7}$)	35.7	37.9	36.9	33.6	40.5	39.3	56.1	53.5	42.4
Exptl. α 0–100° ($\times 10^{-7}$)	54.9	51.2	47.5	47.0	54.0	50.2	62.0	60.0	53.0
Exptl. α 100–400° ($\times 10^{-7}$)	62.1	58.8	54.7	53.5	61.0	57.7	71.2	69.1	60.9
Softening point (°C.)	665	680	693	700	682	680	670	675	707
Transformation point (°C.)	610	642	670	675	652	653	645	645	670
Annealing range (°C.)	450–665	500–680	525–695	530–700	530–682	450–680	540–670	540–675	525–707
Chemical solubility (mg.)								5.1	
Melting time (hr.)	5.30	6.00	7.00	7.30	6.00	6.30	6.00	7.00	7.00
Max. temp. (°C.)	1430	1410	1430	1430	1440	1440	1410	1440	1440

	Glass No.								
	10	11	12	13	14	15	16	17	18
Al_2O_3	9.1	9.0	9.1	14.7	5.8	7.7	7.8	8.3	6.0
BaO					2.0	2.0	2.0	2.0	2.0
ZnO	8.5	8.5	8.6	10.8	5.1	7.1	4.5	5.7	5.0
CaO	2.8	2.8	2.9	3.7					3.0
MgO	11.3	11.3	11.4	11.8	7.1	10.1	5.5	8.5	2.0
Calc. α 0–100° ($\times 10^{-7}$)	49.7	46.8	48.2	38.7	53.8	48.9	53.2	50.9	75.0
Exptl. α 0–100° ($\times 10^{-7}$)	53.0	52.1	52.1	41.5	52.1	47.5	58.5	52.1	76.6
Exptl. α 100–400° ($\times 10^{-7}$)	60.9	60	60	47.5	60.0	54.7	67.4	60.0	86.3
Softening point (°C.)	695	690	715	722	610	685	640	670	580
Transformation point (°C.)	660	655	680	685	610	640	602	635	535
Annealing range (°C.)	520–695	530–690	576–715	570–722	448–600	512–685	440–640	525–670	410–580
Chemical solubility (mg.)		5.2			7.0	6.1	7.5	6.9	12.0
Melting time (hr.)	7.00	7.00	7.00	8.00	7.00	7.30	6.30	7.00	4.00
Max. temp. (°C.)	1500	1500	1500	1500	1500	1500	1500	1500	1410

Glasses 1 to 9 contain no BaO, and glasses 10 to 18 contain no B_2O_3.

N.J.K.

A 2.3

Glass

Substitution of prohibited batch materials. O. Pfirrmann. *Sklář a Keramik*, **17**, 14–16 (1940); abstracted in *Glastech. Ber.*, **18**, 163 (1940); *Jour. Soc. Glass Tech.*, **26** [118] 76 (1942).—Manganese, selenium, and boric oxide were urgently required for war industries, and substitutes had to be found for them in glassmaking. Instead of using pyrolusite as a decolorizer, amethyst- and black colored cullet was used. Considerable amounts of manganese and selenium can be saved as decolorizers by using pure raw materials, by the removal of iron as volatile chloride, by melting under oxidizing conditions in the presence of nitrates, sulfates, cerium, or antimony oxides, and by the formation of colorless nonphosphate or nonfluoride compounds. Yellow colors can be obtained by using sulfur-containing graphite. Iron-manganese colored glasses can be produced by mixtures of chromium and nickel, of chromium, copper, and iron, or of graphite and chromium. Iron sulfide is suitable for black glasses. Selenium as a coloring agent is permitted only for the production of signal glasses. Its replacement is difficult, but copper oxide has been suggested as suitable. Borax and boric acid cannot be replaced satisfactorily for heat-resisting glasses. For glasses with low coefficients of thermal expansion, up to 9% ZnO has been introduced at the expense of B_2O_3.

N.F. 2.

Fining of glass. O. Přibal. *Sklářské Rozhledy*, 19 [4] 70–76 (1942).—After a review of fining methods in the glass industry and the mechanism of fining, P. reports experimental work regarding the efficiency of sodium antimonate as a substitute for arsenic. In a base glass of the soda-lime type, sodium antimonate in amounts of 0.4, 0.8, and 2% was compared with 0.3, 0.6, and 1.5% arsenic and with sodium nitrate alone. From an electric furnace five crucibles containing the same experimental batch were withdrawn at intervals of 20 min. after the fining temperature of 1410°C. had been reached and poured into 3- x 2- x 0.625-in. plates. The results show that 0.3% arsenic is insufficient; 0.5% is believed necessary for good fining. Sodium antimonate (0.4%) was equally efficient.
N.J.K.

PRIDAN, O.G.

Onion yield as affected by trace elements in the Northern Ural region. Dokl.AN SSSR 106 no.5:926-929 F '56. (MIRA 9:7)

1.Nauchno-issledovatel'skiy statsionar Ural'skogo filiala Akademii nauk SSSR, Ivdel', Sverdlovskoy oblasti. Predstavleno akademikom A.L.Kursanovym.
(Ural Mountain region--Onions)

Pridan, O. G.

Effect of trace elements on onion crop in Northern Transural region. O. G. Pridan (Sci. Research Sta., Ivdel, District Sverdlovsk). *Doklady Akad. Nauk S.S.S.R.* 106, 926-9(1950).—Addn. of $CuSO_4$ or H_3BO_3 in 15 and 5 kg./ha., resp., doses resulted in a significant increase of onion crop in field expts. Combined action of Cu and B was most beneficial.
G. M. Kosolapoff

PRIDANNIKOV, P.T.

PRIDANNIKOV, P.T.

Guarding the Muscovites' health. Gor.khoz.Mosk. 31 no.10:36-40 O '57. (MIRA 10:10)

1. Predsedatel' Postoyannoy komissii Mossoveta po zdravookhraneniyu.
(Moscow--Public health)

PRIDANNIKOV, P.T., deputat

Municipal sanitation services. Gor.khoz.Mosk. 34 no.5: 32-34 My '60. (MIRA 13:7)

1. Predsedatel' Postoyannoy komissii zdravookhraneniya i sotsial'nogo obespecheniya Moskovskogo Soveta.
(Moscow--Municipal engineering)

PRIDANTSEV, A.I. (Moskva); RIMASHEVSKIY A.V. (Moskva);
SOLOV'YEV, A.N. (Moskva)

Method for continous viscosity measurement. PMTF no.1:128-132
Ja - F '61. (MIRA 14:6)
(Viscosimetry)

PRIDANTSEV, A.I.

CARD 1 / 2 PA - 1518

SUBJECT USSR / PHYSICS
AUTHOR NOVIKOV,I.I., SOLOVEV,A.N., CHABACHPAŠEVA,E.M., GRUZDEV,V.A., PRIDANZEV,A.I., VASENINA,M.JA.
TITLE The Heat Transfer and the Thermophysical Properties of Fused Alkali Metals.
PERIODICAL Atomnaja Energija, 1, fasc. 4, 92-106 (1956)
Issued: 19.10.1956

From 1950 to 1955 the authors carried out experimental research work concerning the thermophysical parameters and the heat transfer of fused metals. The present article deals with the most important results obtained in the course of this research work.

Heat transfer: The experimental apparatus consisted of a heat commutator, cooler, pump, consumption meter, and registering valve. The individual components and their functions are discussed. In a series of experiments the heat transfer between liquid sodium and the copper heating surface is investigated. In the course of a second series of experiments the inner surface of the same heat commutator was coated with a nickel layer of about 10 μ thickness. Experiments were carried out at a velocity of flow of the liquid sodium amounting to from 0,8 to 11 m/sec and at temperatures of from 140 to 340° C. On this occasion the dimenionless criteria characterizing heat transfer were modified within the following limits: $Re = 1{,}5.10^4$ to $2{,}1.10^5$, $Pr = (5 \text{ to } 9).10^{-3}$, $Pe = 100$ to 1400.

The viscosity of Na, K, Li and of a eutectic mixture of Na and K (25% Na +

75% K) was measured by the method of damped torsion oscillations of a small pail filled with the fused metal. The experiments, which were carried out under different conditions, yielded results which agreed well with one another and which are shown in diagrams. In the case of all metals investigated, γ (= viscosity?) diminishes at first rapidly and later more slowly.

The temperature conductivity of alkali metals: The metal is investigated in a vertical thin tube of stainless steel the lower end of which is closed by welding. The carrying out of experiments is discussed in detail on the basis of drawings. The temperature conductivity coefficient of K diminishes at first sharply and later more slowly as temperature rises. The temperature conductivity coefficient of Na grows from 100 to 150° , after which it decreases monotonously with a further increase of temperature, but the temperature conductivity coefficient of the alloy mentioned increases monotonously.

The density of the fused alkali metals was measured in a simple manner and with sufficient accuracy by means of a body of known volume which was submerged in the liquid to be investigated. All measuring values are on a straight line with an accuracy of 0,4%. The density of Na and K decreases linearly with rising temperature.

INSTITUTION:

36417
S/124/62/000/004/026/030
D251/D301

26.2197

AUTHORS: Pridantsev, A. I., Rimashevskiy, A. V. and Solov'yev, A. N.

TITLE: Continuous measurement of the viscosity of liquids

PERIODICAL: Referativnyy zhurnal, Mekhanika, no. 4, 1962, 142, abstract 4B899 (Zh. prikl. mekhan. i tekhn. fiz., 1961, no. 1, 128-132)

TEXT: A description is given of a vibrational method and apparatus for continuous measurement of the viscosity temperature and pressure. The method is based on the measurement of the amplitude of the natural oscillations of a plate loaded with the liquid to be tested. The experimental apparatus consists of two self-induction coils and a central rod with a probe going down into a glass beaker with two walls, between which the fluid circulates from a thermostat, maintaining constant temperature conditions during the experiment. One coil serves to excite the oscillations provided by a 'tuning-fork' generator, the other for their registration. Cham-

Card 1/2

Continuous measurement of ...

bers are provided for the sharp reduction of electrical, magnetic and other interference (magnetic screens, soft suspension massive resistances, etc.). Stability of working of the electronic scheme is achieved after pre-heating in the flow for 2 - 3 hours. In comparison with other vibrational methods, this method guarantees a much higher degree of precision (0.5 - 1%). With the aid of this method measurements were made of the viscosity of benzol, toluol and ethyl- and n-butyl alcohol at temperatures from 10 - 70°C. The results of the measurements agreed well with the values from the tables. 5 references. /Abstracter's note: Complete translation./

Card 2/2

GUSEV, V.V. (Moskva); PRIDANTSEV, A.I. (Moskva); SOLOV'YEV, A.N. (Moskva)

Determining the coefficient of heat transfer to a boiling liquid in the case of continuous variation of the heat flow. PMTF no.4:111-114 Jl-Ag '62. (MIRA 16:1)
(Heat--Transmission) (Ebullition)

PRIDANTSEV, A. I.

5362

HEAT TRANSFER AND THERMOPHYSICAL PROPERTIES OF MOLTEN ALKALI METALS. I. I. Novikov, A. N. Solovyev, E. M. Khabakhpasheva, V. A. Gruzdev, A. I. Pridantsev, and M. Ya. Vasenin. Soviet J. Atomic Energy v. 545-60(1956).

An investigation was undertaken of heat transfer to molten sodium during turbulent flow in a round copper or nickel tube. An interpolation formula was obtained. Experiments were conducted to determine thermal resistance between liquid sodium and a solid wall of copper, nickel, and stainless steel. Methods were developed for measurement of viscosity, temperature conductivity and density of molten metals. Results are given for measurements of these physical parameters for molten alkali metals (sodium, potassium, lithium and the eutectic solution of sodium and potassium) in a broad interval of temperatures (auth)

PRIDANTSEV, K. S.
TITLE: Seminar on refractory metals, compounds, and alloys (Kiev, April 1963)
SOURCE: Atomnaya energiya, v. 15, no. 3, 1963, 266-267.

ACCESSION NR: AP3008085

germanides and their properties.

T. I. Zhuravlev, A. I. Avgustinnik, V. S. Vidergauz. Precipitation of refractory compounds by the electrophoresis method.

Ye. A. Shtrum. Application of transfer reactions for growing single crystals of refractory compounds.

K. S. Pridantsev, N. S. Solov'yev, Technology of production and the use of nonmagnetic zirconium-base alloys.

T. V. Krasnopevtseva, P. M. Paretskaya. Chromium-base precision alloys.

M. V. Vink. Application of zirconium boride and molybdenum silicide antiemission coatings.

O. P. Kolchin, I. K. Berlin. Synthesis and use of niobium carbide.

Card 5/11

PRIDANTSEV, M.V., doktor tekhn.nauk, prof.; IANSKAYA, K.A., kand.tekhn.nauk

Development and application of heat resistant pipe steel. Teploenergetika 9 no.8:2-6 Ag '62. (MIRA 15:7)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii.
(Steel) (Pipe, Steel)

PHASE I BOOK EXPLOITATION SOV/6163

Pridantsev, Mikhail Vasil'yevich

Vliyaniye primesey i redkozemel'nykh elementov na svoystva splavov (Effect of Impurities and Rare-Earth Elements on Properties of Alloys). Moscow, Metallurgizdat, 1962. 206 p. 3850 copies printed.

Ed. of Publishing House: A. L. Ozeretskaya; Tech. Ed.: M. K. Attopovich.

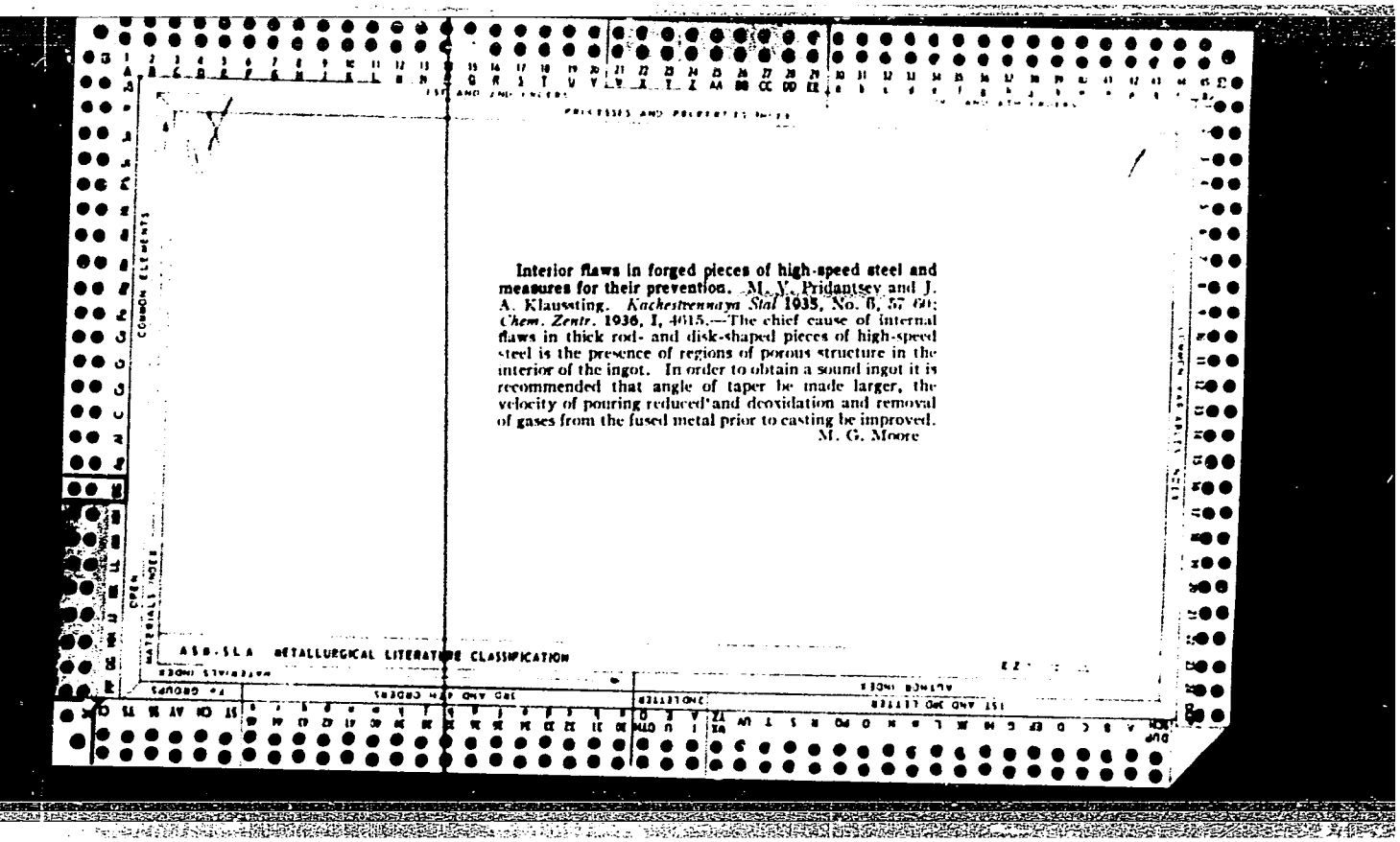
PURPOSE: This book is intended for scientific and engineering personnel engaged in the fields of metallurgy, machine building, and instrument manufacture. It may also be useful to students at schools of higher education.

COVERAGE: The author discusses the results of a study of the effect of certain low-melting impurities and additions of alkaline-earth and rare-earth elements on the technological, mechanical, and operational properties of high-alloy steels and alloys. Systematized

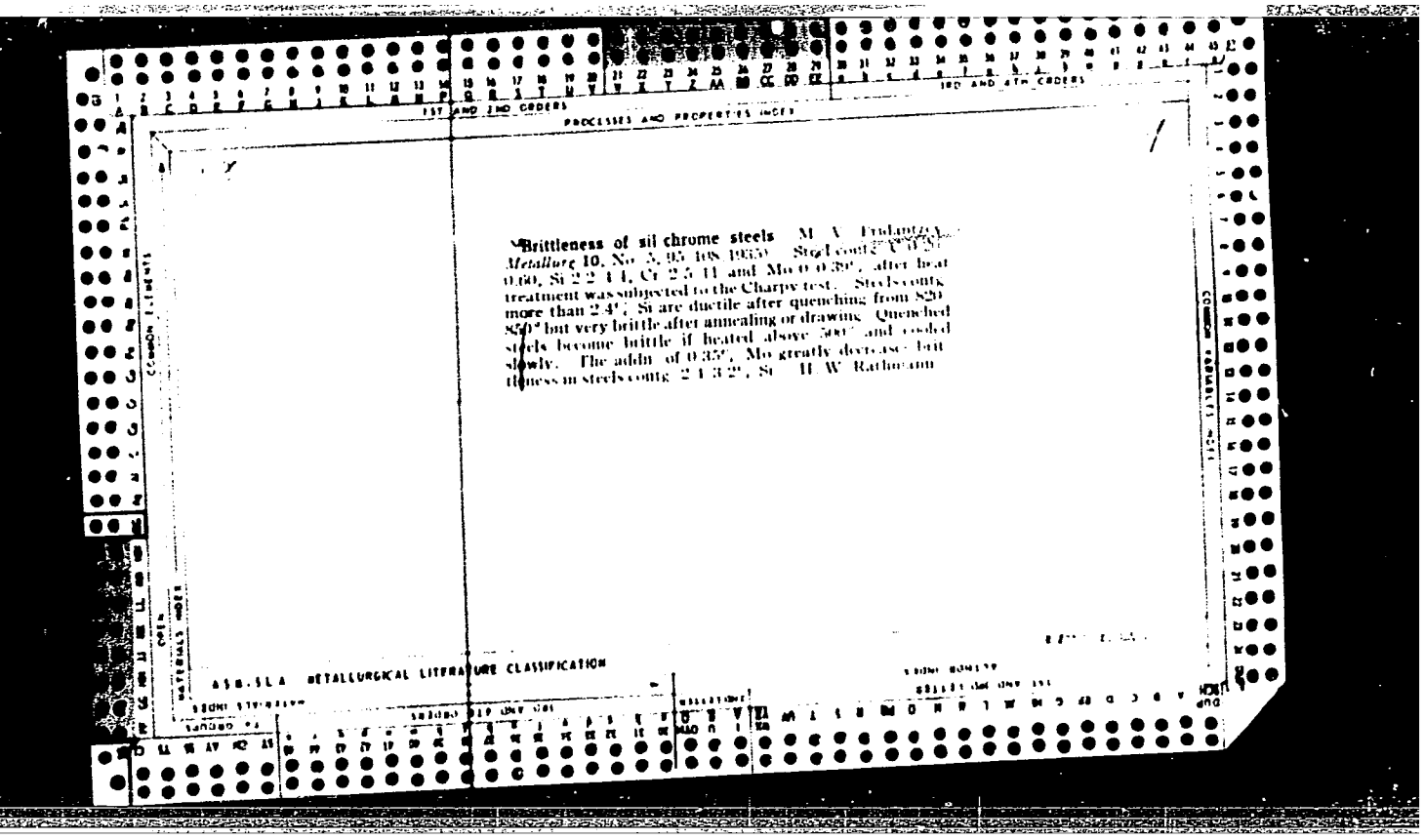
Card 1/12

data on the properties of these elements and on the mechanism of their effect are presented. The author thanks D. A. Litvinenko, G. V. Estulin, A. R. Krylova, K. A. Lanskaya, A. V. Merlina, A. S. Astaf'yev, L. N. Zimina, and Ye. M. Savitskiy for their assistance. There are 92 references: 57 Soviet, 26 English, and 9 German.

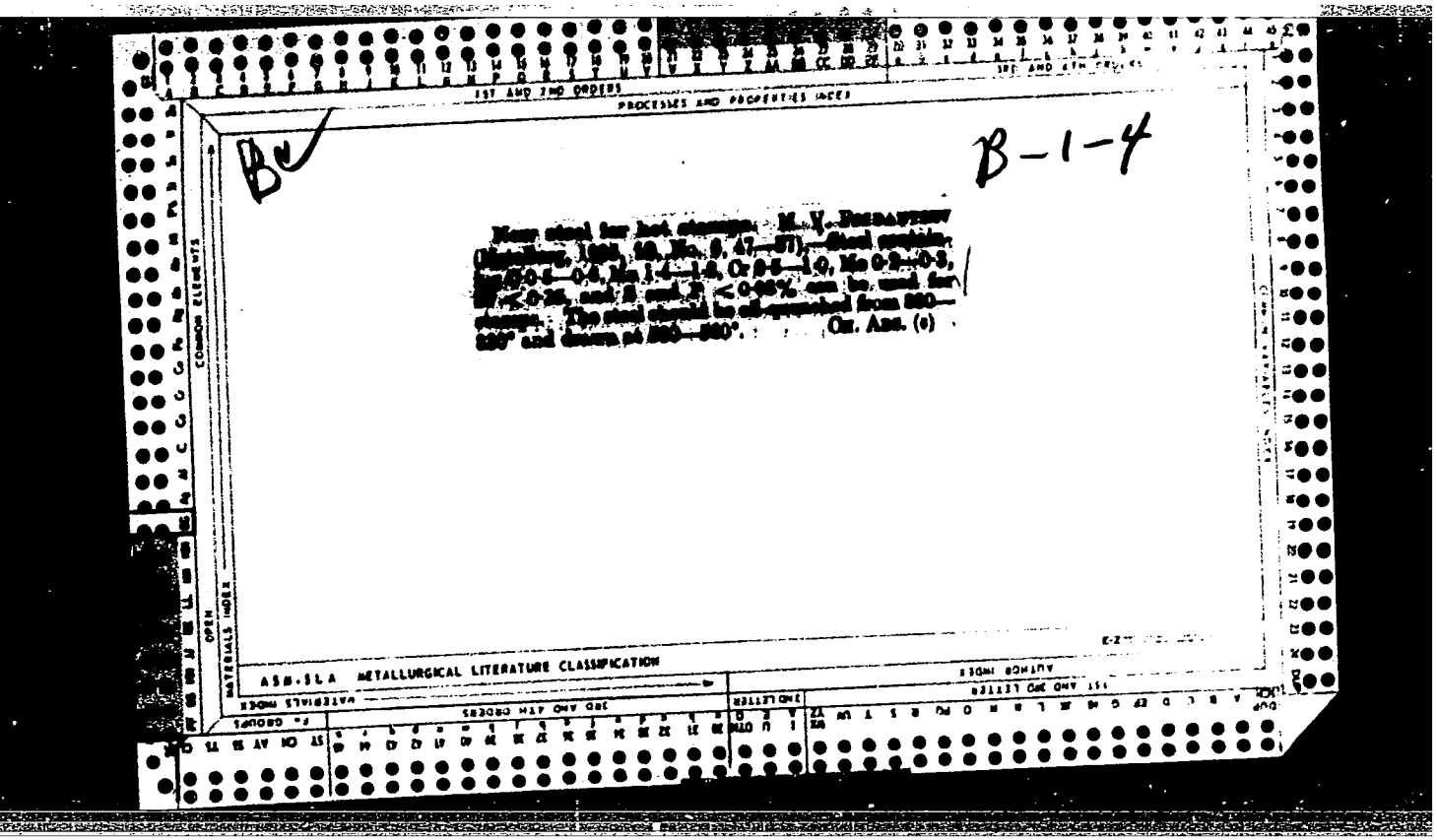
TABLE OF CONTENTS:

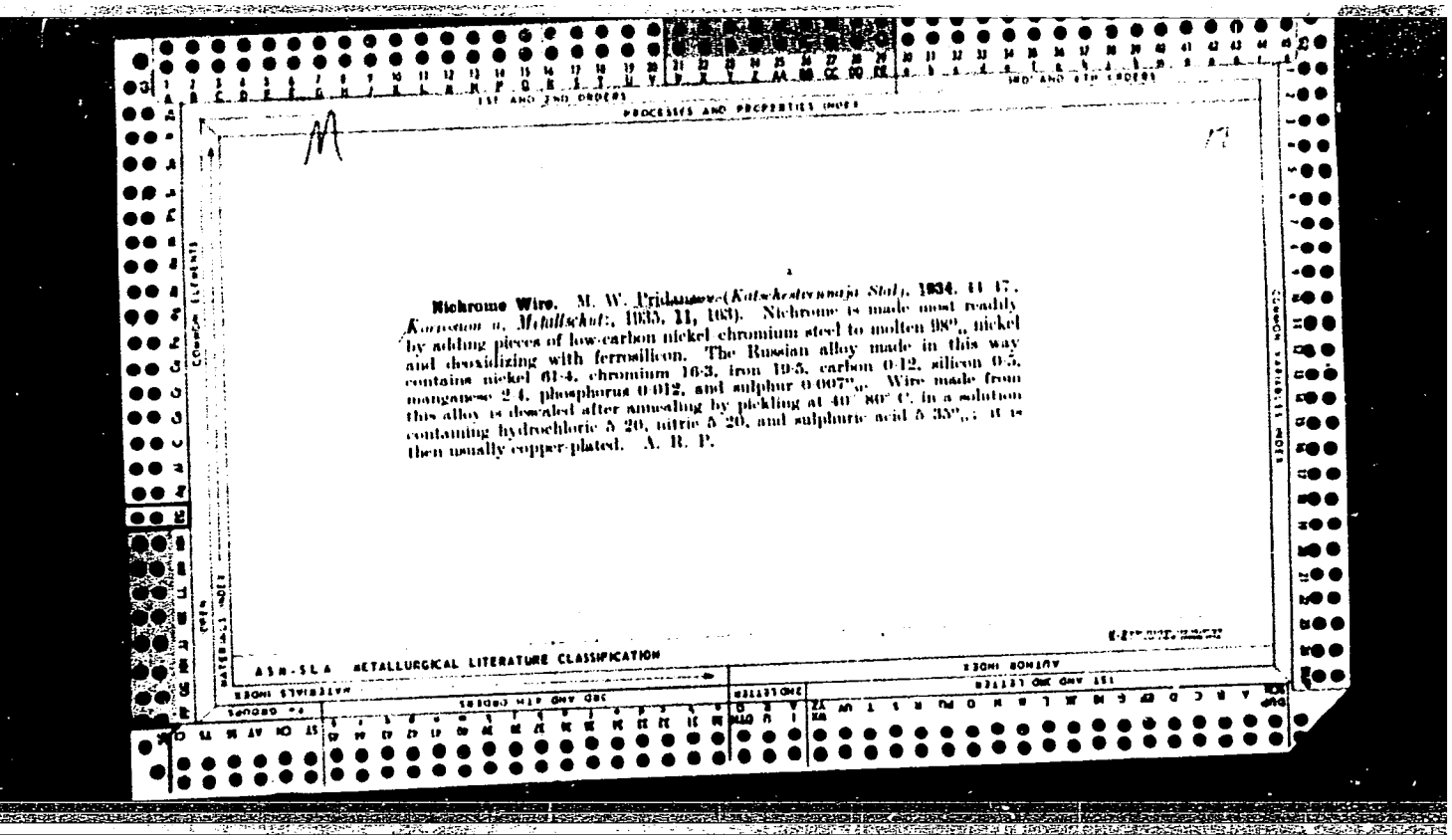


Interior flaws in forged pieces of high-speed steel and measures for their prevention. M. V. Pridantsev and J. A. Klausting. *Kachestvennaya Stal* 1935, No. 6, 57–61; *Chem. Zentr.* 1936, I, 4015.—The chief cause of internal flaws in thick rod- and disk-shaped pieces of high-speed steel is the presence of regions of porous structure in the interior of the ingot. In order to obtain a sound ingot it is recommended that angle of taper be made larger, the velocity of pouring reduced and deoxidation and removal of gases from the fused metal prior to casting be improved.
M. G. Moore

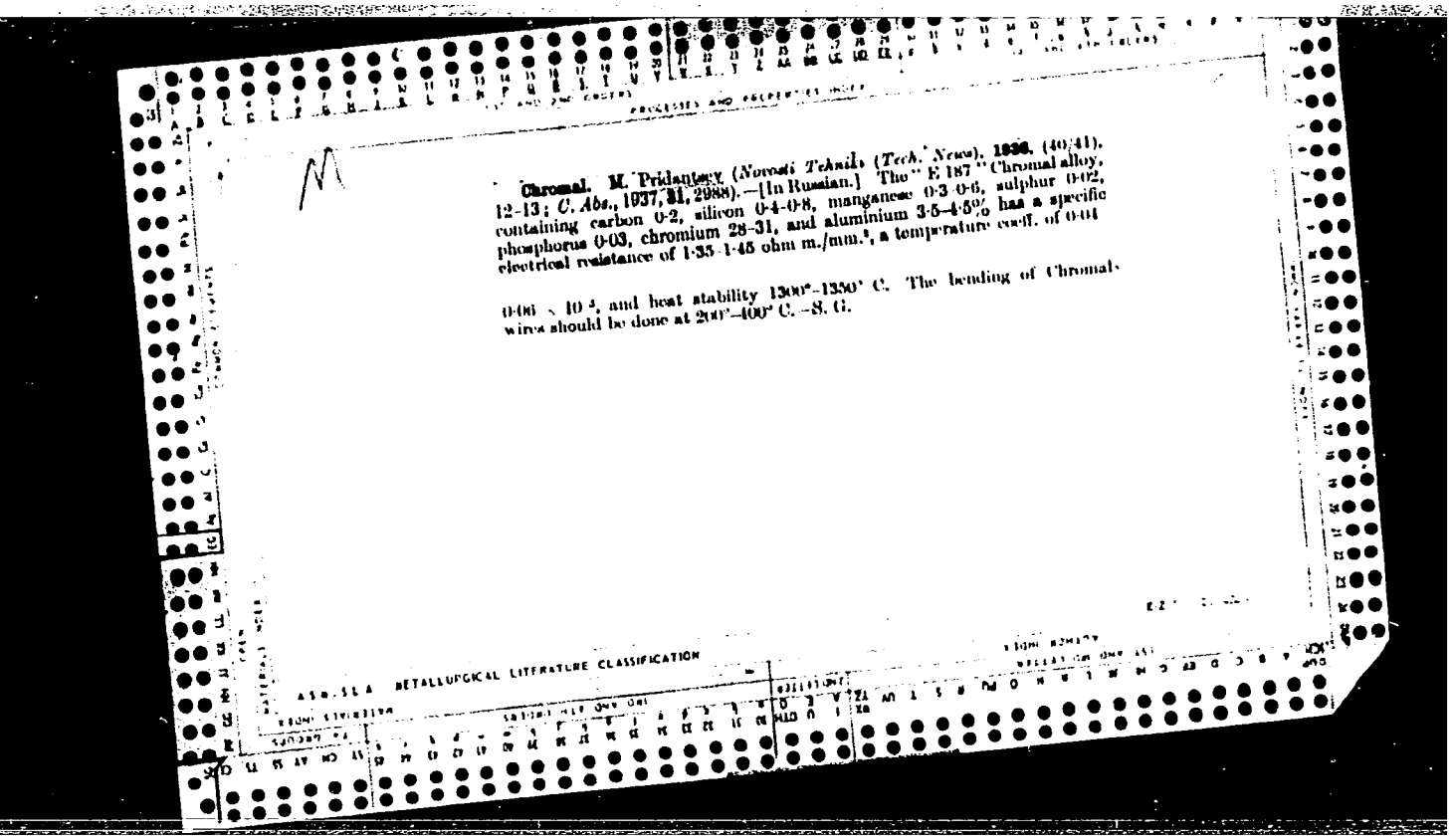


Brittleness of sil chrome steels M V Fridlander *Metallurg* **10**, No 5, 95-108 1935 Steel cont C 0 [illegible] 0 60, Si 2 2 4 4, Cr 2 5 11 and Mo 0 0 35%, after heat treatment was subjected to the Charpy test Steels contg more than 2 4% Si are ductile after quenching from 820 850° but very brittle after annealing or drawing Quenched steels become brittle if heated above 500° and cooled slowly The addn of 0 35% Mo greatly decreases brittleness in steels contg 2 4 3 2% Si H W Rathmann



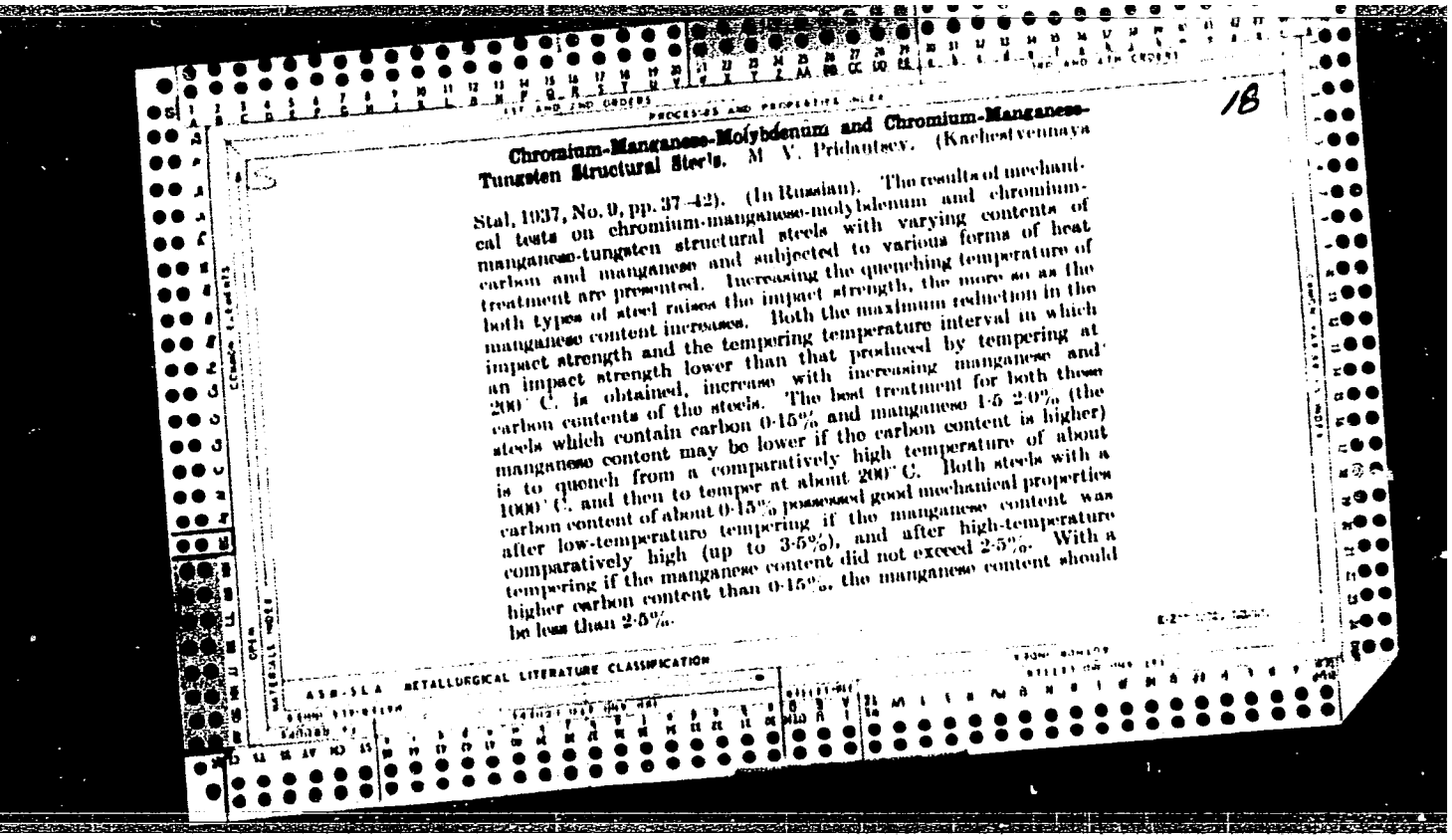


Nichrome Wire. M. W. Pridantsev (*Kats'kedzivnaja Stal'*, 1934, 11 17. *Korrosion u. Metallschutz*, 1935, 11, 103). Nichrome is made most readily by adding pieces of low-carbon nickel chromium steel to molten 98% nickel and deoxidizing with ferrosilicon. The Russian alloy made in this way contains nickel 61·4, chromium 16·3, iron 19·5, carbon 0·12, silicon 0·5, manganese 2·4, phosphorus 0·012, and sulphur 0·007%. Wire made from this alloy is descaled after annealing by pickling at 40° 80° C. in a solution containing hydrochloric 5–20, nitric 5–20, and sulphuric acid 5–35%; it is then usually copper-plated. A. R. P.

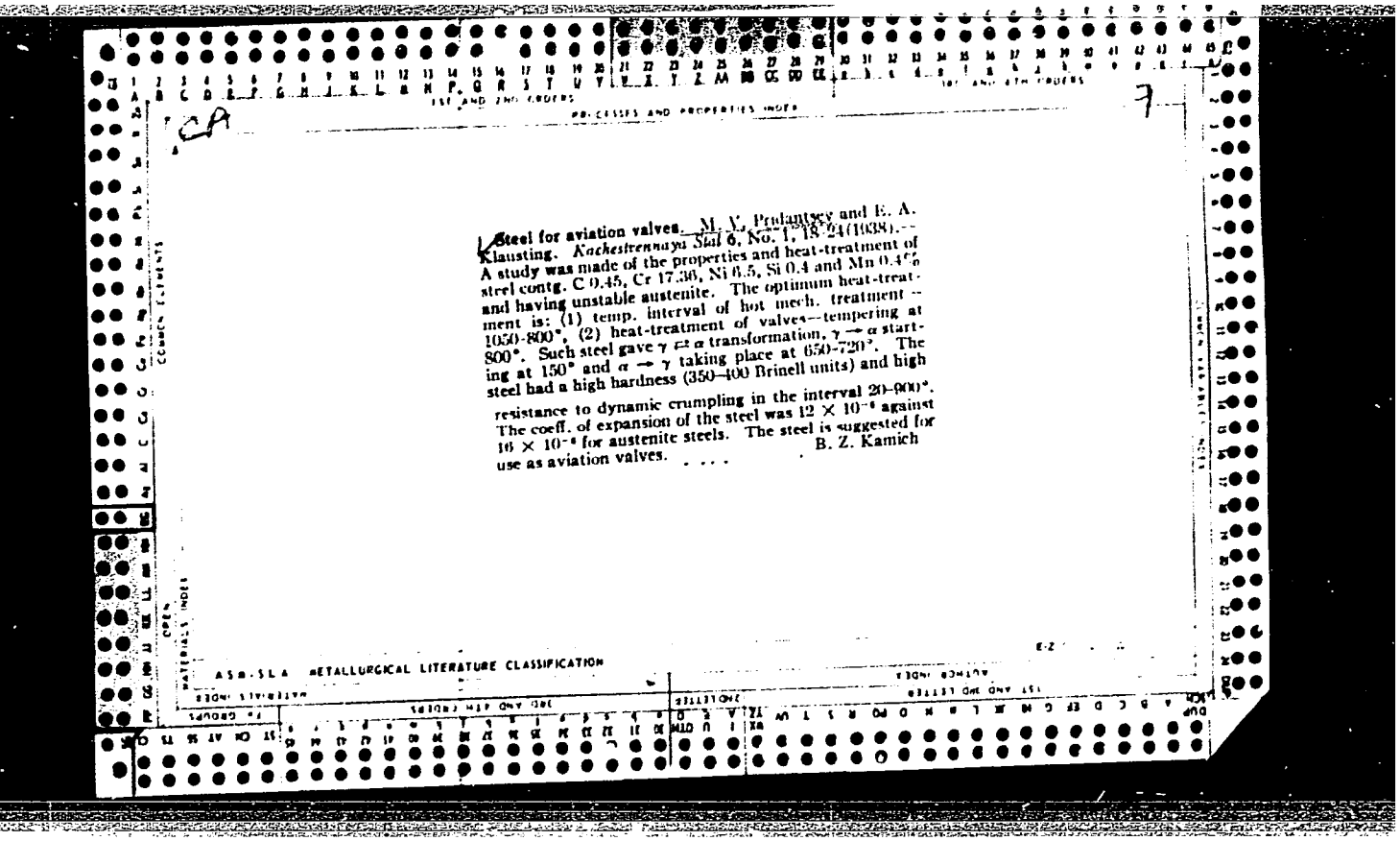


Chromal. M. Pridantsev (*Novosti Tekhniki* (*Tech. News*), **1936**, (40/41), 12–13; *C. Abs.*, 1937, **31**, 2988).—[In Russian.] The "E 187" Chromal alloy, containing carbon 0·2, silicon 0·4–0·8, manganese 0·3–0·6, sulphur 0·02, phosphorus 0·03, chromium 28–31, and aluminium 3·5–4·5% has a specific electrical resistance of 1·35–1·45 ohm m./mm.², a temperature coeff. of 0·01 0·06 × 10⁻³, and heat stability 1300°–1350° C. The bending of Chromal wires should be done at 200°–400° C.—S. G.

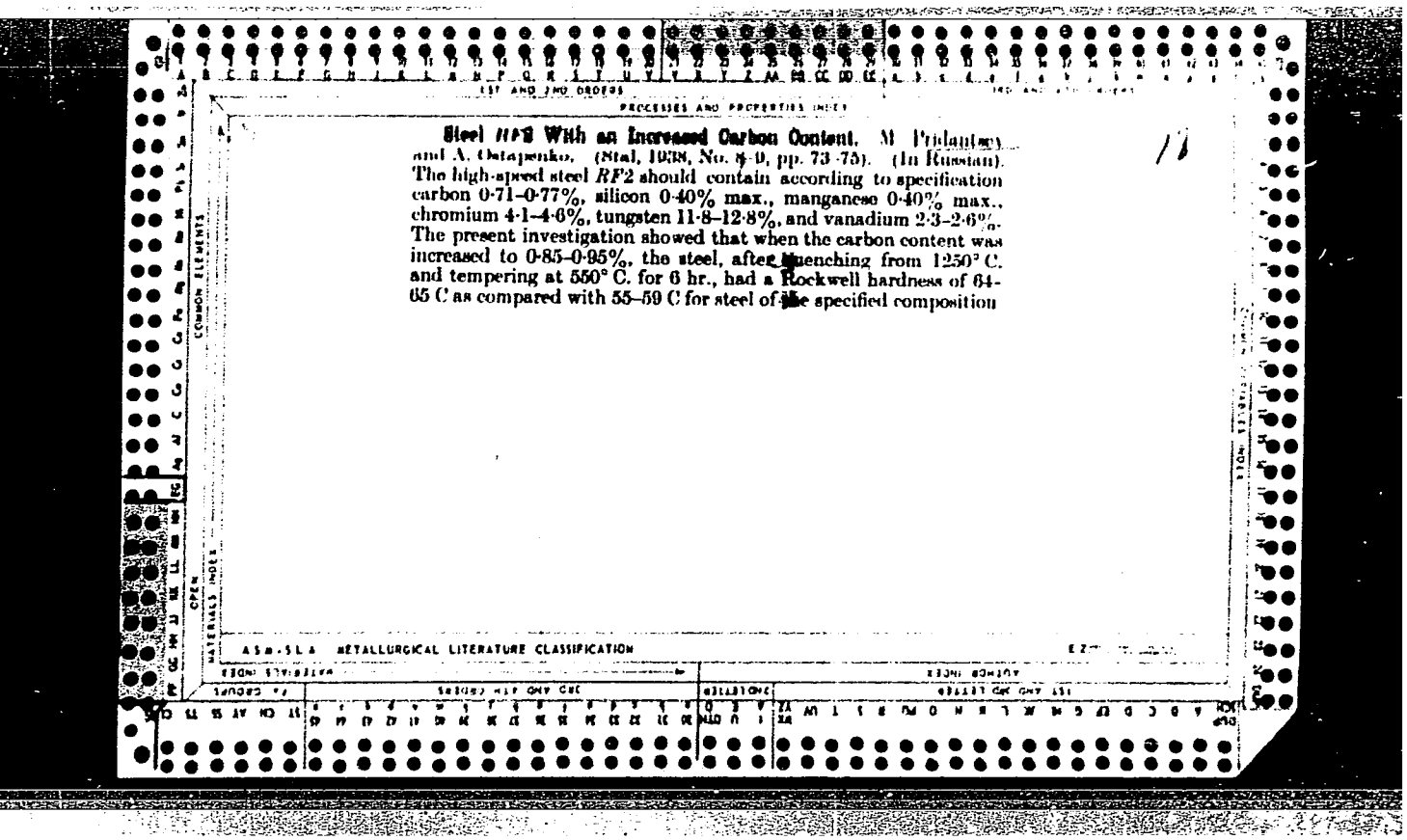
METALLURGICAL LITERATURE CLASSIFICATION



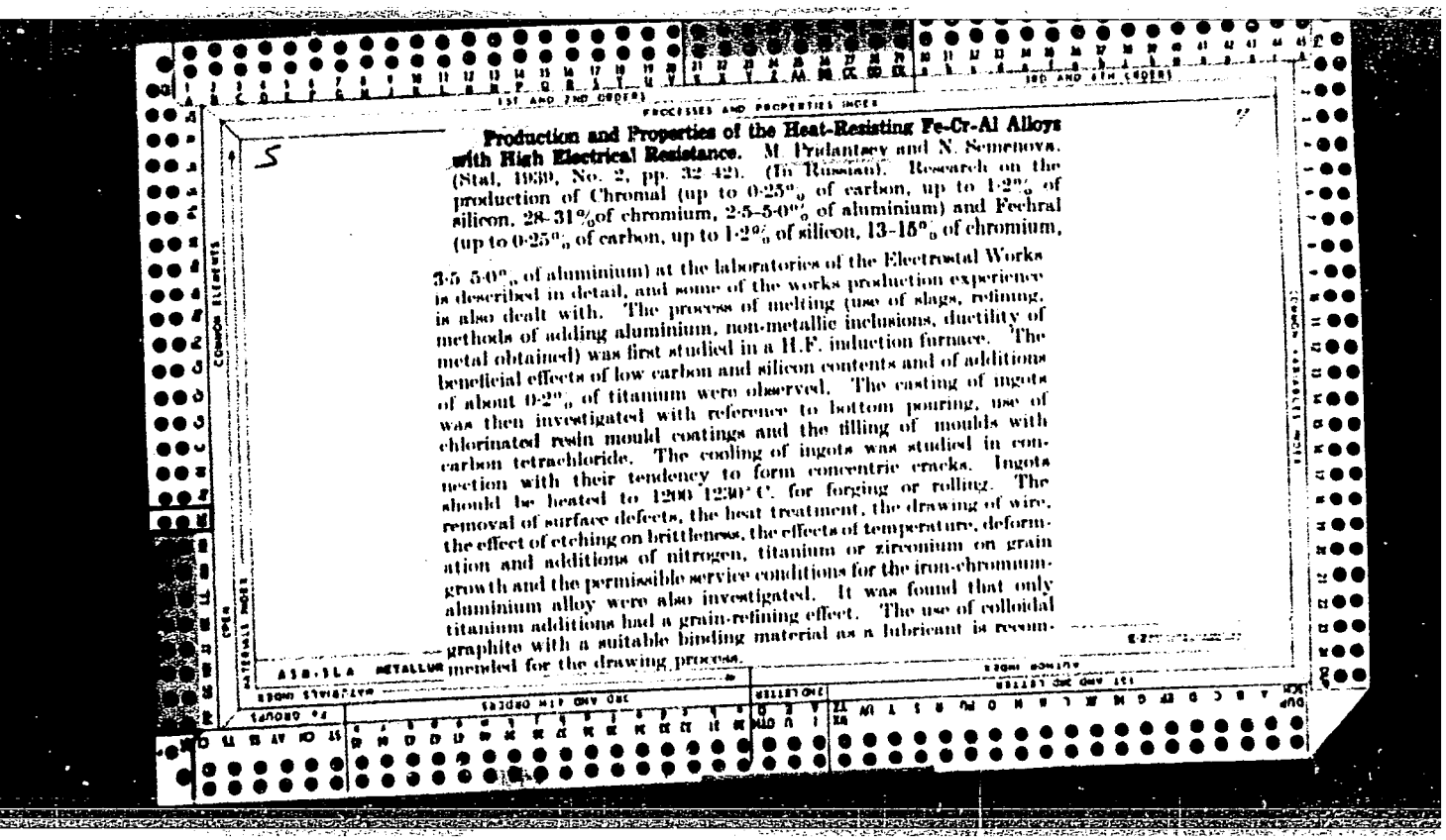
Chromium-Manganese-Molybdenum and Chromium-Manganese-Tungsten Structural Steels. M. V. Pridantsev. (Kachestvennaya Stal, 1937, No. 9, pp. 37–42). (In Russian). The results of mechanical tests on chromium-manganese-molybdenum and chromium-manganese-tungsten structural steels with varying contents of carbon and manganese and subjected to various forms of heat treatment are presented. Increasing the quenching temperature of both types of steel raises the impact strength, the more so as the manganese content increases. Both the maximum reduction in the impact strength and the tempering temperature interval in which an impact strength lower than that produced by tempering at 200° C. is obtained, increase with increasing manganese and carbon contents of the steels. The best treatment for both these steels which contain carbon 0·15% and manganese 1·5–2·0% (the manganese content may be lower if the carbon content is higher) is to quench from a comparatively high temperature of about 1000° C. and then to temper at about 200° C. Both steels with a carbon content of about 0·15% possessed good mechanical properties after low-temperature tempering if the manganese content was comparatively high (up to 3·5%), and after high-temperature tempering if the manganese content did not exceed 2·5%. With a higher carbon content than 0·15%, the manganese content should be less than 2·5%.



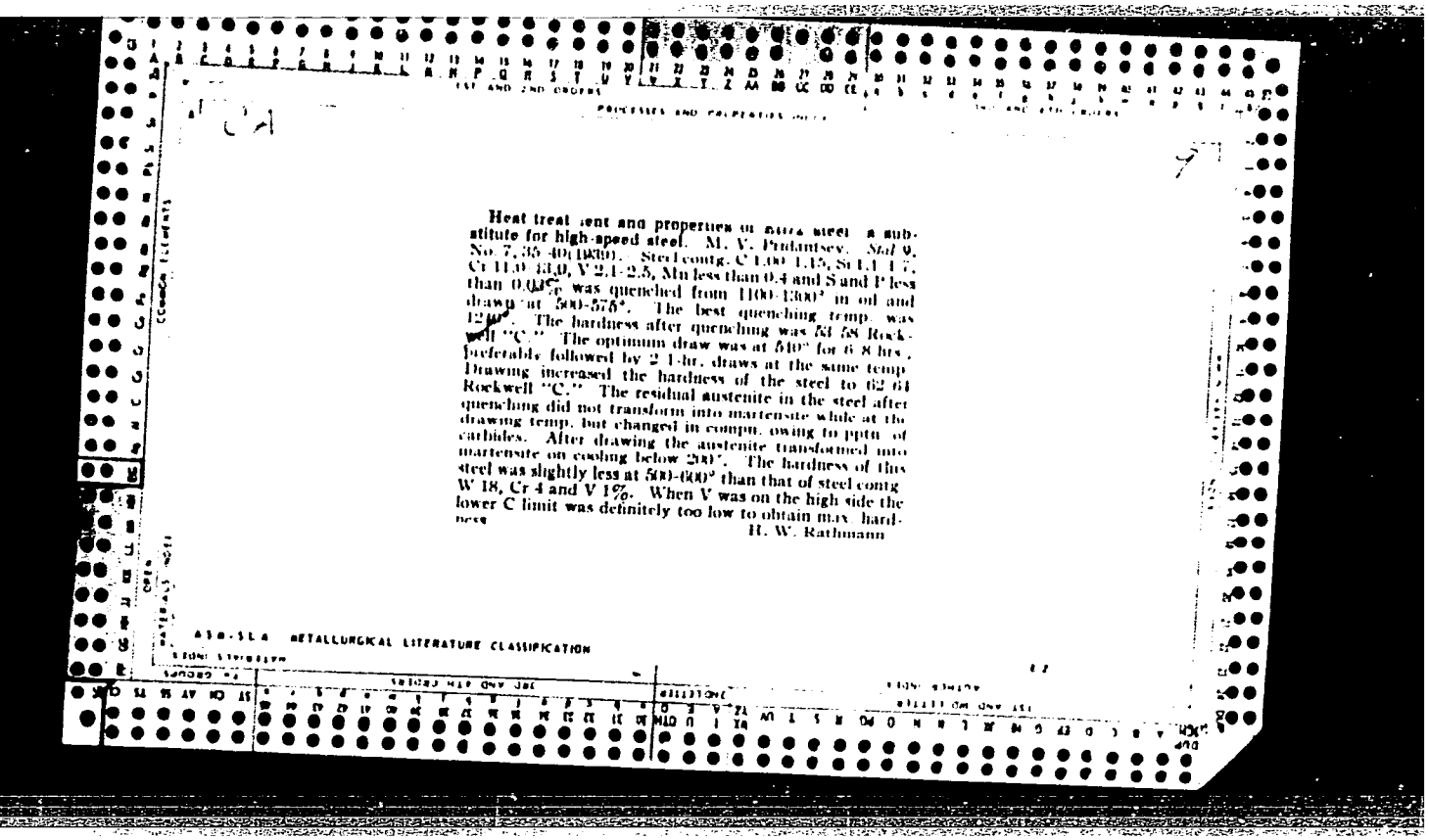
Steel for aviation valves. M. V. Prolantsev and E. A. Klausting. *Kachestvennaya Stal* 6, No. 1, 18–24(1938).—A study was made of the properties and heat-treatment of steel contg. C 0.45, Cr 17.36, Ni 6.5, Si 0.4 and Mn 0.4% and having unstable austenite. The optimum heat-treatment is: (1) temp. interval of hot mech. treatment—1050–800°, (2) heat-treatment of valves—tempering at 800°. Such steel gave $\gamma \rightleftarrows \alpha$ transformation, $\gamma \rightarrow \alpha$ starting at 150° and $\alpha \rightarrow \gamma$ taking place at 650–720°. The steel had a high hardness (350–400 Brinell units) and high resistance to dynamic crumpling in the interval 20–900°. The coeff. of expansion of the steel was 12×10^{-6} against 16×10^{-6} for austenite steels. The steel is suggested for use as aviation valves. . . . . B. Z. Kamich



Steel *RF2* With an Increased Carbon Content. M. Prilutsky and A. Ostapenko. (Stal, 1938, No. 8-9, pp. 73-75). (In Russian). The high-speed steel *RF2* should contain according to specification carbon 0·71–0·77%, silicon 0·40% max., manganese 0·40% max., chromium 4·1–4·6%, tungsten 11·8–12·8%, and vanadium 2·3–2·6%. The present investigation showed that when the carbon content was increased to 0·85–0·95%, the steel, after quenching from 1250° C. and tempering at 550° C. for 6 hr., had a Rockwell hardness of 64–65 C as compared with 55–59 C for steel of the specified composition



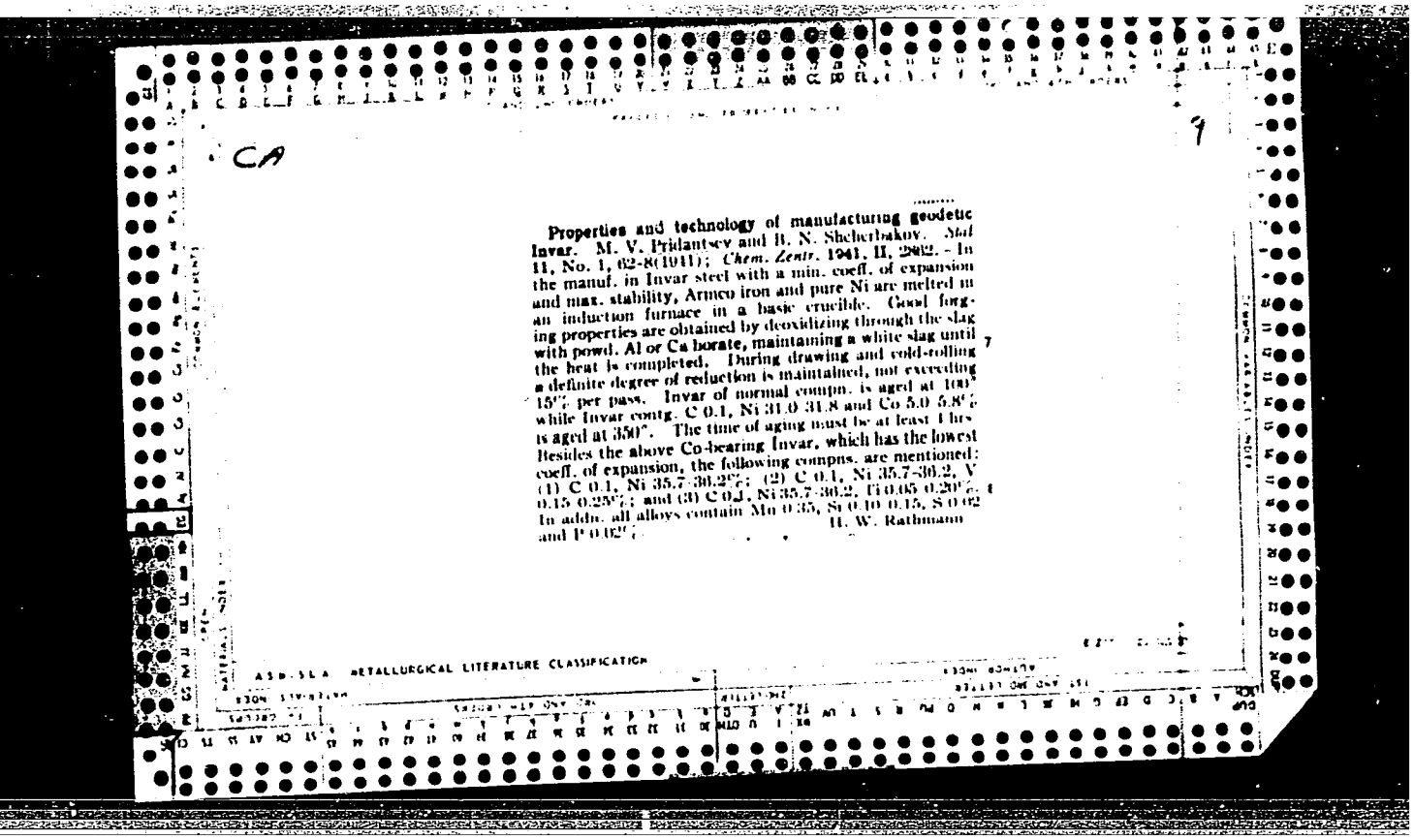
Production and Properties of the Heat-Resisting Fe-Cr-Al Alloys with High Electrical Resistance. M. Prdantsev and N. Semenova. (Stal, 1939, No. 2, pp. 32-42). (In Russian). Research on the production of Chromal (up to 0·25% of carbon, up to 1·2% of silicon, 28-31% of chromium, 2·5-5·0% of aluminium) and Fechral (up to 0·25% of carbon, up to 1·2% of silicon, 13-15% of chromium, 3·5-5·0% of aluminium) at the laboratories of the Electrostal Works is described in detail, and some of the works production experience is also dealt with. The process of melting (use of slags, refining, methods of adding aluminium, non-metallic inclusions, ductility of metal obtained) was first studied in a H.F. induction furnace. The beneficial effects of low carbon and silicon contents and of additions of about 0·2% of titanium were observed. The casting of ingots was then investigated with reference to bottom pouring, use of chlorinated resin mould coatings and the filling of moulds with carbon tetrachloride. The cooling of ingots was studied in connection with their tendency to form concentric cracks. Ingots should be heated to 1200-1230° C. for forging or rolling. The removal of surface defects, the heat treatment, the drawing of wire, the effect of etching on brittleness, the effects of temperature, deformation and additions of nitrogen, titanium or zirconium on grain growth and the permissible service conditions for the iron-chromium-aluminium alloy were also investigated. It was found that only titanium additions had a grain-refining effect. The use of colloidal graphite with a suitable binding material as a lubricant is recommended for the drawing process.



Heat treatment and properties of Diera steel a substitute for high-speed steel. M. V. Prilutsev. *Stal'* 9, No. 7, 35-40(1939). Steel contg. C 1.00-1.15, Si 1.1-1.7, Cr 11.0-13.0, V 2.1-2.5, Mn less than 0.4 and S and P less than 0.03% was quenched from 1100-1300° in oil and drawn at 500-576°. The best quenching temp. was 1200°. The hardness after quenching was 63-68 Rockwell "C." The optimum draw was at 540° for 6-8 hrs., preferably followed by 2 1-hr. draws at the same temp. Drawing increased the hardness of the steel to 62-64 Rockwell "C." The residual austenite in the steel after quenching did not transform into martensite while at the drawing temp. but changed in compn. owing to ppth. of carbides. After drawing the austenite transformed into martensite on cooling below 200°. The hardness of this steel was slightly less at 500-600° than that of steel contg. W 18, Cr 4 and V 1%. When V was on the high side the lower C limit was definitely too low to obtain max. hardness.

H. W. Rathmann

A59-514 METALLURGICAL LITERATURE CLASSIFICATION



CA

9

Properties and technology of manufacturing geodetic Invar. M. V. Pridantsev and B. N. Shcherbakov. *Stal* 11, No. 1, 62-8(1941); *Chem. Zentr.* 1941, II, 2862. - In the manuf. in Invar steel with a min. coeff. of expansion and max. stability, Armco iron and pure Ni are melted in an induction furnace in a basic crucible. Good forging properties are obtained by deoxidizing through the slag with powd. Al or Ca borate, maintaining a white slag until the heat is completed. During drawing and cold-rolling a definite degree of reduction is maintained, not exceeding 15% per pass. Invar of normal compn. is aged at 100° while Invar contg. C 0.1, Ni 31.0 31.8 and Co 5.0 5.8% is aged at 350°. The time of aging must be at least 1 hrs. Besides the above Co-bearing Invar, which has the lowest coeff. of expansion, the following compns. are mentioned: (1) C 0.1, Ni 35.7 36.2%; (2) C 0.1, Ni 35.7-36.2, V 0.15 0.25%; and (3) C 0.1, Ni 35.7-36.2, Ti 0.05 0.20%. In addn. all alloys contain Mn 0.35, Si 0.10 0.15, S 0.02 and P 0.02%.

H. W. Rathmann

ASM-SLA METALLURGICAL LITERATURE CLASSIFICATION

PRIDANTSEV, M. V.

"Temper Brittleness of Steel." Sub 30 May 47, Inst of Metallurgy imeni Academician A. A. Baykov, Acad Sci USSR

Dissertations presented for degrees in science and engineering in Moscow in 1947

SO: Sum No. 457, 18 Apr 55

PRIDANTSEV, M. Oct 52

USSR/Metallurgy - Steels, Conservation of Alloying Elements

"Increased use of New Grades of Steel," Dr Tech Sci, M. Pridantsev, Stalin Prize Laureate

Za Ekon Materialov, No 3, pp 36-43

Discusses problem of conservation of expensive alloying elements, mainly Mo and Ni, by use of new, less expensive steels. Outlines possibilities for increased use of V, B, Cb and Zr in steel alloying. Suggests expansion in application of Mn as alloying element. Briefly reviews activity of various ministries and industries in conservation of alloying elements, finding conservation efforts not quite satisfactory.

Source #264T55

1. PRIDANTSEV, M.

2. USSR (600)

4. Metal Industries

7. Lower losses of raw materials and materials in ferrous metallurgy, Za ekon. mat No. 3, 1953.

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

PRIDANTSEV, M.V.

3

aluminium considerably increased their hardenability and improved their plastic properties. Boron increased the stability of austenite in the lower transformation range and improved the [illegible] Suitable [illegible] and [illegible]

Cent. Sci Res Inst. Ferrous Metallurgy

Pridantsev, M. V.

24

Effects of Skewing of Test-Pieces on the Endurance Strength of Alloys. M. V. Pridantsev and G. V. Estulin [illegible] 1955, 21, 767 [illegible] An account is given of an investigation [illegible] of the effect of non-alignment of a test piece on the time required to fracture it by a tensile load at high temperatures. Skewing by as little as 1·5° was found to reduce the time greatly, the effect being most marked with relatively hard and coarse-grained alloys. With skewing the sensitivity to notching also increased. These effects in certain high-temperature alloys are attributed to insufficient reserves of plasticity. Skew high-temperature tensile tests are useful as additional parameters for characterizing the suitability of alloys for high temperature service under complex loads.—S. K.

Metals

Cent. Sci. Res. Inst. Ferrous Metallurgy

PRIDANTSEV, M.V.; MESHCHERINOVA, O.N.; PIGUZOV, Yu.V.

Internal friction method for investigating the mechanism of the effect of boron on steel. Dokl.AN SSSR 111 no.1:98-101 N-D '56. (MLRA 10:2)

1. Institut stali TSentral'nogo nauchno-issledovatel'skogo instituta chernoy metallurgii. Predstavleno akademikom I.P.Bardinym.
(Boron steel)

PRIDANTSEV, M. V. and SVEDO-SHVETS, N. I.

"Thermocouples for Momentary Measuring of Temperatures above 2,300 Degrees Centigrade" a paper read at the International Metallurgists' Conference, Moscow 26-30 June 56

SO: CS-3,302,240, 11 Jan 57.

Fridantsev, M. V.

5
9 E2c
9 E 4j

The investigation of the mechanism of the influence of boron in steels by an internal friction method. M. V. Fridantsev, O. N. Meshcheringova, and Yu. V. Pigrov. *Doklady Akad. Nauk S.S.S.R.* 111, 98-101(1956).—Steel was prepd. with 0.000, 0.004, 0.006, and 0.008% B (analyses presented also for C, Mn, Cr, Si, P, S, and Ni), and the curves are presented for the internal friction Q as a function of the various B contents, after annealing at 900° and preliminary heating to 700, 750, and 800°; the Q values would always show 2 max. at 30 and 540°, but the curves for the modulus of shear, of samples which contain B, show a steeper drop at higher preliminary heating temps. than the curves for the sample without B. Werner Jacobson

111

4/1 20

PRIDANTSEV, M.V.

130-7-9/24

AUTHORS: Pridantsev, M.V. (Prof., Dr.Tech.Sciences) and Livshits, G.L., (Cand.Tech.Sciences).

TITLE: New Types of Low-Alloy Steels (Novye marki nizkolegirovannykh staley)

PERIODICAL: Metallurg, 1957, Nr 7, pp.18-19 (USSR)

ABSTRACT: Pointing out that substantial savings of steel and reductions in the weights of articles by using low-alloy steels in place of ordinary carbon steels the authors deal with some relevant properties of the former and describe some new types. Weldability, suitability for concrete reinforcement and comparative costs are considered. A table of chemical compositions of Soviet low-alloy steels according to ГОСТ 5058-57 is given on p.19. Unlike foreign specifications, this standard guarantees the chemical compositions for each type, specifies the carbon and alloying-element contents more closely with lower top limits for carbon, sulphur and phosphorus. In connection with the need for thorough deoxidation the experience at the "Zaporozhstal'" works which showed that less aluminium could be used with improved results is mentioned. Ways of economising in ferroalloys are mentioned as is the need to avoid high-carbon exothermic mixtures for ingot hot tops.

Card 1/2

130-7-9/24

New Types of Low-Alloy Steels.
There is 1 table.
ASSOCIATION: TsNIIChM
AVAILABLE: Library of Congress.

Card 2/2

PRIDANTSEV, M.V.

133-7-18/28

AUTHOR: Pridantsev, M.V., Doctor of Technical Sciences, Professor, and Estulin, G.V., Candidate of Technical Sciences.

TITLE: The Influence of Admixtures on Properties of Heat-resistant Alloys on the Nickel-Chromium Base. (Vliyaniye primesey na svoystva zharoprochnykh splavov na nikel'khromovoy osnove)

PERIODICAL: Stal', 1957, No.7, pp. 636 - 640 (USSR).

ABSTRACT: The influence of some admixtures on the forging ability and heat-resistance of nickel alloys was investigated. As a material for the investigation experimental melt of steel XH80T containing 0.03 - 0.05% C, 20 - 21% Cr, 2.4 - 2.6% Ti, 0.7 - 1.0% Al and individual admixtures of : up to 0.01% Pb, up to 0.02% Sb, up to 0.02% S, up to 0.035% P, up to 0.2% C, up to 2% Si and up to 5% Mn were used. E.I. Belikova participated in work on the influence of carbon, silicon and manganese. The influence of lead and antimony on the impact strength of the alloy at high temperatures is shown in Figs. 1 and 2, respectively. The influence of Pb and Sb on the strength of the alloy at 700 °C is shown in Fig.3 and the same for carbon at 750 °C in Fig.5. The dependence of mechanical properties of the alloy after ageing on the silicon and manganese content - Fig.6. The dependence of the hardness of the alloy on the carbon content after ageing is shown in Fig.7. An example of

Cardl/3

The Influence of Admixtures on Properties of Heat-resistant Alloys on the Nickel-Chromium Base.

inter-crystalline destruction of the alloy at 700 - 800 °C is shown in Fig.4. It is concluded that: the most harmful admixtures in heat-resistant nickel alloys are lead, antimony and other elements possessing low melting temperatures and insignificant solubility in the solid solution. The distribution of only a few thousands of percent of such admixtures along the grain boundaries decreases inter-crystalline strength due to which the forging ability and heat resistance of the metal sharply deteriorates. The properties of deformed alloys on nickel-chromium base deteriorate on an increase of concentrations of sulphur, carbon, silicon and manganese above a certain level. The harmful influence of sulphur is due to the possibility of the formation of low melting sulphide components lowering the inter-crystalline strength. Carbon binds a part of titanium into a stable carbide phase resulting in a decrease of titanium concentration in solid solution and thus in the intermetallic strengthening α'- phase which leads to a decrease in heat-resistance. The unfavourable influence of silicon on the forging ability and heat-resistance can be explained by the formation of brittle silicides due to the low solubility of this element in a highly-alloyed nickel-chromium solid solution. A decrease in

The Influence of Admixtures on Properties of Heat-resistant Alloys on the Nickel-Chromium Base. 135-7-15/28

heat-resistance with increasing content of manganese in the alloy is, apparently, related to a decrease in the resistance of particles of strengthening α'- phase on solution of manganese in it against the action of temperature. A substantial improvement in the properties of heat-resistant alloys on a nickel-chromium base can be obtained on reducing to a minimum the content of lead, antimony and other low-melting admixtures (up to spectral purity) as well as to a minimum optimal content of carbon, sulphur, silicon and manganese. There are 7 figures and 13 references, 9 of which are Slavic.

ASSOCIATION: TsNIIChM

AVAILABLE: Library of Congress

Card 3/3

133-8-18/28

AUTHORS: Pridantsev, M.V. (Dr.Tech.Sc.) and Smirnov, Ye.V. (Eng.)

TITLE: The cause of local brittleness in technical iron sheets and methods of its elimination. (Ustraneniye mestnoy khrupkosti v listovom tekhnicheskom zheleze).

PERIODICAL: "Stal'" (Steel), No.8, 1957, pp.736-740 (USSR).

ABSTRACT: In iron sheets (Armco type) produced by "Serp i Molot" Works localised brittleness was occasionally observed. The investigation described was carried out in order to establish causes of such brittleness and methods of its prevention. In the experimental part of the work, V.N. Torubarova, Z.P.Solov'yeva, R.M.Rozenblyum, E.M.Chistyakova and R.E.Grabarovskaya participated. Chemical composition and the content of gases in brittle and ductile specimens of technical iron (Table 1) did not show any substantial differences. Microphotographs of the above two types of specimens (Fig.2) indicated some differences in grain boundaries which in brittle specimens were more strongly etched and somewhat thicker. Electron microphotographs (Figs. 3 and 4) indicated that thickening of grain boundaries of brittle specimens represents accumulations of some kind of inclusions. The nature of the brittle fracture (Figs. 5 and 6) indicated that this takes place along the grain boundaries. Annealing in asbestos and in

Card 1/3

The cause of local brittleness in technical iron sheets and methods of its elimination. (Cont.) 133-8-18/28

a vacuum of ductile specimens at various temperatures was carried out. In all specimens annealed above the critical point (900 C) brittleness was found while in those annealed below the critical point (870 C) brittleness was absent. On the assumption that brittleness is caused by oxide segregation annealing of specimens in a dry and wet hydrogen or dissociated ammonia atmosphere was tested. Annealing in a dry hydrogen atmosphere removed brittleness and considerably decreased the value of the coercive force while annealing in wet hydrogen did not remove brittleness (Table 2). The influence of annealing in a dry hydrogen atmosphere on the oxygen content and the value of coercive force was additionally tested on samples from a few melts (Table 3). Sheet specimens from some melts were cut in two parts and carbon, sulphur and oxygen contents in one part of the specimen were determined in the initial state and in another part after annealing in a reducing or oxidising medium and from the difference, changes in chemical composition were determined. The results obtained (Table 4) indicated that the removal of brittleness by annealing in dry hydrogen or dissociated ammonia

Card 2/3

The cause of local brittleness in technical iron sheets and methods of its elimination. (Cont.)

atmosphere are due to the removal of oxygen. This was confirmed by the determination of non-metallic inclusions (Table 5) before and after annealing in dry hydrogen. On the basis of the results obtained annealing of parts from technical iron in an atmosphere of dry hydrogen was recommended. Introduction of this practice in two works led to the elimination of this type of defects.

There are 5 tables, 6 figures and 3 references, including 1 Slavic.

ASSOCIATION: TsNIIChM.

AVAILABLE: Library of Congress

Card 3/3

SOV/137-58-7-15786

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 7, p 269 (USSR)

AUTHORS: ~~Pridantsev, M. V.~~, Livshits, G. L.

TITLE: Low-alloy Steels of New Types, Their Production and Use (Nizkolegirovannyye stali novykh marok, ikh proizvodstvo i primeneniye)

PERIODICAL: Tr. Nauchno-tekhn. o-va chernoy metallurgii, 1957, Vol 18, pp 183-192

ABSTRACT: It is proposed that for important welded structures and constructions high-strength low-alloy steel be used instead of carbon steel grades St 3, 4, 15, 25, and others in cases when such a substitution does not lead to an increase in the cost of construction. Data on various grades of low-alloy steels and their uses is given. The peculiarities of the technology of the production of low-alloy steel and the application of heat treatment of the steel for the sake of economy in metal are described. See also RZhMet, 1958, Nr 1, abstract 1751.

1. Steel alloys--Production 2. Steel alloys--Applications

Card 1/1 I. B.

Pridantsev, M.V.

133-11-9/19

AUTHOR: Pridantsev, M.V., Doctor of Technical Sciences, Professor

TITLE: Research Works in the Field of Development of New Grades of Steel and Alloys, Metallography and Heat Treatment (Raboty v oblasti izyskaniya novykh staley i splavov metallovedeniya i termicheskoy obrabotki)

PERIODICAL: Stal', 1957, No.11, pp. 1006 - 1010 (USSR)

ABSTRACT: This is a brief review of the work done on the development of new steels, research on the influence of various admixtures on mechanical properties of steel and development of methods of heat treatment. Main points: development of heat-resisting steels for the gas turbine industry ЭИ437 and ЭИ435 (with the co-operation of "Elektrostal'" Works, TsNIIChM and VIAM); The influence of admixtures C, S, Pb, Sb on the properties of heat-resisting steels (Table 1, Fig.1); the development by TsNIIChM and TsNIITMASh of new steels for boilers (results of tests at various temperatures for 100 000 hours by K.S. Lanskoy, given in Fig.2); studies of kinetics of the process of diffusion redistribution of strengthening elements between solid solution and carbide phase under service conditions (redistribution of Mo and V at 540 - 550 °C shown in Fig.3, K.A. Lanskoy); development of low-alloy industrial steels of increased strength for replacing carbon steels for

Cardl/3

Research Works in the Field of Development of New Grades of Steel and Alloys, Metallography and Heat Treatment

which TsNIIChM and TsNOIS worked out standards (for 24 types of steel) ГОСТ 5058-57; heat treatment of carbon steels for replacement of low-alloy steels (the effect of heat treatment of carbon steels is shown in Tables 2 and 3); development of cold rolled transformer steel with low specific losses and a high magnetic induction (TsNIIChM, by A.A. Rastorguyev, A.G. Petrenko and A.A. Nepedov); development of practically non-ageing sheet steel 08Ю КП with 0.02 - 0.04% V (by A.A. Rastorguyev and D.A. Litvinenko); development of structural steel 30ХГН for replacing molybdenum containing C-80 steel (by L.N. Davydova); development of new nitrided steels 38ХВФЮ and 38ХМО (by G.L. Livshits and G.A. Torpanova); development of boron containing steels for the automobile industry (35 ХР, 40ХГР, ЭИ392 and 15ХР); development of new tool steels 5ХНС, 5ХНСВ and Х12Ф for stamping and high-speed cutting steels ЭИ705 and ЭИ706 (under the direction of A.G. Ivanov); development of new acid-resisting steels ЭИ530, 628 and 629 (by A.A. Babakov and Ye.V. Zotova); development of new stainless steels, containing 4% less nickel (ЭИ810 and 811); work on the prevention of flake formation (A.A. Rostorguyev and D.A. Litvinenko) in blooms and quality steels.

Research Works in the Field of Development of New Grades of Steel and Alloys, Metallography and Heat Treatment 133-11-9/19

There are 3 figures, 3 tables and 2 Russian references.

AVAILABLE: Library of Congress
Card 3/3

SAMARIN, A.M.; YEFIMOV, L.M.; VESELKOV, N.G.; ORMAN, R.Z.; SHABANOV, A.N.; MOROZENSKIY, L.I.; GRANAT, I.Ya.; TOCHINSKIY, A.S.; ALYAVDIN, V.A.; DANILOV, P.M.; PETRIKEYEV, V.I.; POPOV, B.N.; BOBKOV, T.M.; ROSTKOVSKIY, S.Ye.; GAVRISH, D.I.; D'YAKONOV, N.S.; TIMOSHPOL'SKIY, M.N.; ROMANOV, V.D.; POCHTMAN, A.M.; MELESHKO, A.M.; PODGORETSKIY, A.A.; OFENGENDEN, A.M.; BRONSHTEYN, V.M.; PRIDANTSEV, M.V.; LIVSHITS, G.L.; ROZHKOV, V.A.; RUTES, V.S.

Reports (brief annotations). Biul. TSNIICHM no.18/19:15-16 '57. (MIRA 11:4)

1. Chlen-korrespondent AN SSSR (for Samarin). 2. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii (for Rutes, Rostkovskiy, Pridantsev, Livshits, Rozhkov). 3. Stal'proyekt (for Shabanov). 4. Kuznetskiy metallurgicheskiy kombinat (for Alyavdin, Danilov, Petrikeyev). 5. Zavod "Elektrostal'" (for Popov). 6. "Dneprospetsstal'" (for Bobkov). 7. Glavogneupor Ministerstva chernoy metallurgii SSSR (for Gavrish). 8. Planovoye upravleniye Ministerstva chernoy metallurgii SSSR (for D'yakonov). 9. Otdel rabochikh kadrov, truda i zarplaty Ministerstva chernoy metallurgii SSSR (for Timoshpol'skiy). 10. Glavvtorchermet Ministerstva chernoy metallurgii SSSR (for Romanov). 11. Giprostal' (for Pochtman). 12. Zavod im. Voroshilova (for Meleshko). 13. Zavod "Zaporozhstal'" (for Podgoretskiy). 14. Stalinskiy metallurgicheskiy zavod (for Ofengenden). 15. Nizhne-Tagil'skiy metallurgicheskiy kombinat (for Bronshteyn).

(Steel--Metallurgy)

SOV/137-58-9-19953

Translation from: Referativnyy zhurnal, Metallurgiya, 1958, Nr 9, p 266 (USSR)

AUTHORS: Pridantsev, M.V., Meshcherinova, O.N.

TITLE: Influence of Boron on the Structure and Properties of Steel (Vliyaniye bora na strukturu i svoystva stali)

PERIODICAL: Metallovedeniye i term. obrabotka. Moscow, Metallurgizdat., 1958, pp 3-20

ABSTRACT: The effect of B on Mn and Cr-Mn steels and ingot iron is investigated. It is found that introduction of up to 0.01% B reduces the critical points (by 15-20°C) and the temperature of onset of intensive growth of austenite, causes grain growth (grain growth is most rapid when B > 0.004%) and increases the hardenability of steel. Samples of large cross section undergo an increase in hardness and strength properties owing to the increase in hardenability. Introduction of B into ingot iron intensifies aging processes; this is explained by the formation of an interstitial solid solution of B in Fe and by a diminution in the solubility of C. The steel is of maximum hardenability at 0.002% B, when B is introduced in a complex with Ti, Zr, and Al in the form of graynal "79" and quenching is

Card 1/2

Influence of Boron on the Structure and Properties of Steel

performed from 830-850°. An increase in temperature causes borides to precipitate at the grain boundaries, and hardenability is reduced. Previous homogenation or heating for forging do not affect the hardenability of the steel. B is taken up to the greatest degree (0.006%) when N is fixed in nitrides by deoxidation of the steel by Al (0.8-1.0 kg/t) and by Ti. Bibliography: 17 references.

1. Steel--Properties 2. Iron--Properties 3. Boron--Metallurgical effects

F.U.

Card 2/2

PRIDANTSEV, M.V.

Some problems in the heat-resistance theory. Issl. po zharopr. splav. 3:12-22 '58. (MIRA 11:11)

(Heat-resistant alloys) (Metallography) (Crystal lattices)

133-58-5-22/31

AUTHORS: Pridantsev, M. V., Doctor of Technical Science, Professor; Bat', A.A. Engineer, Gladshteyn, L. I., Engineer, and Levinzon, Kh. Sh.

TITLE: Heat-Treated Steel, St. 3kp. brand, for Building Structures (Termicheski obrabotannaya stal' marki St.3kp dlya stroitel'nykh konstruktsiy)

PERIODICAL: Stal', 1958, №5, pp 449-456 (USSR)

ABSTRACT: About 80% of steel used in the building industry consists of low carbon rimming steel St.3kp delivered in a hot rolled state with comparatively low mechanical properties. Therefore, some improvement of this steel by a heat treatment on the works is of particular importance. In the paper an investigation of the properties of the steel heat treated under works conditions (Nizhniy Tagil Combine) representative of the normal works' output is described. Steel plates 1500 x 6000 mm, 12, 20 and 40 mm thick from two heats representative of the low and upper limits of carbon content were taken for the investigation (GOST-380-50). The composition in %:

C	Mn	Si	Cr	Ni	Cu	P	S
0.14	0.47	traces	.03	.03	0.24	.025	.044
0.19	0.54	traces	.02	.04	0.25	.017	.033

Card 1/5

133-58-5-22/31

Heat-Treated Steel, St. 3kp brand for Building Structures

Two modifications of heat treatment were tested: hardening without annealing (heating to 930°C, soaking for 20 to 45 minutes, depending on the plate thickness, cooling in running water for 3 to 6 minutes, depending on the plate thickness, before dipping into water, the temperature of the plates usually fell to 840 to 880°C) and hardening with annealing (at 580 to 600°C for eight hours). Mechanical properties, tendency to mechanical ageing and weldability of the specimens cut from heat treated plates were investigated. Table 1 - mechanical properties of steel specimens cut from edges of plates as hot rolled (GK), hardened (Z) and hardened and annealed (Z + O); Table 2 - chemical composition and mechanical properties of heat treated steel specimens cut out some distance from the plate edges. Fig. 1, the dependence of the impact strength on the test temperature; Fig.2 - the microstructure of hardened steel. A low tendency of thermally treated carbon rimming steel to ageing is due to its low temperature of brittleness in the initial state. In order to check this view as well as to determine the impact strength at various temperatures before and after ageing depending

Card 2/5

Heat-Treated Steel, St. 3kp brand, for Building Structures

on the conditions of thermal treatment a number of experiments were carried out with 12 mm thick plates. Specimens 260 to 80 mm were heated to 930°C, soaked at this temperature for 30 minutes and then cooled with four various velocities (Fig.3). The microstructure of steel after all four types of thermal treatment is shown in Fig.4. The ageing action on steel after various thermal treatments was evaluated not only by changes in the impact strength at a few temperatures (+20 to -20°C) but also by the direct value of the shift of the critical temperature interval of brittleness. The dependence of the impact strength on the test temperature for the three cooling velocities A - with furnace, B in air and V in oil with the indication of the nature of fracture are given in Fig.5, and the dependence of the temperature range of brittleness on the mean linear size of grain in Fig.6. In investigations of the weldability of St.3kp steel hardened, in order to decrease its tendency to brittle destruction and to increase its strength, special attention was paid to retaining these properties. The influence of welding on the first property was evaluated from the impact

Card 3/5