Analysis of Voltage-Current Characteristics of Silicon Diodes

where α is a parameter contained between 1.0 and 0.5, W_i is the activation energy, k is the Boltzmann constant and T is the absolute temperature. If Eq.(1) is plotted to logarithmic scale, a straight line is obtained. Consequently, the curves of Fig.1 and 2 are plotted logarithmically in Fig.3. From this, it is seen that all the straight lines converge at a point P_1. This point corresponds to the temperature of 192°C. It is, therefore, possible to determine the activation energy. It is found from the graphs that for the voltage of 0.5 V the activation energy is 1.16 eV. This figure is in good agreement with the value of the activation energy quoted in the available literature. The p-type junctions had the following characteristics; average resistivity of 400 Ω cm, plate thickness of 0.5 mm and area of 75 mm^2. The reverse characteristics of this junction are shown in Fig.5; this is replotted logarithmically in Fig.6, where it is seen that the curves become equidistant straight lines. From these characteristics, it is found that the activation energy is 0.3 to 0.62 eV. These figures are comparatively low and it is thought that they are due to the acceptor energy level in the main band;

Analysis of Voltage-Current Characteristics of Silicon Diodes

the forward characteristics of the diodes were also measured. The n-type diode had the following parameters: average resistance of 100 Ω cm, plate thickness of 0.5 mm and junction area of 150 mm^2. The characteristics of this diode are plotted logarithmically for various temperatures in Fig.8. The p-type rectifier had an average resistivity of 400 Ω cm, thickness of 0.5 mm and junction area of 75 mm^2. The logarithmic plots of the characteristics of the element for various temperatures are shown in Fig.9. From the characteristics in Fig.8 and 9 it is seen that in the region of medium and high currents they can be approximated by straight lines which converge at a point P_2 for both types of junction. The voltage coordinate of P_2 corresponds to the activation energy of silicon (1.2 eV). The characteristics of germanium diode were also measured for the purpose of comparison; these were shown in Fig.5, from which it is seen that a P_2 has the coordinate of 0.73 V which corresponds to the activation energy of germanium. Theoretically the forward characteristic of a silicon rectifier can be expressed by

$$J = a e \left(\frac{L_p}{\tau_p} + \frac{L_n}{\tau_n} \right) N_o e^{-\alpha \frac{W_i}{kT}} \left[e^{\alpha \frac{eU}{kT}} - 1 \right] \qquad (5)$$

Analysis of Voltage-Current Characteristics of Silicon Diodes

where a is a constant, N_o is the total number of electrons which can be produced by thermal ionization in one cm^3, L_p is the diffusion length of the holes, L_n is the diffusion length of the electrons, p_n is the concentration of the n-type holes, n_p is the concentration of the p-type electrons, τ_p is the life time of the holes, τ_n is the life time of the electrons. Eq.(5) can approximately be expressed by Eq.(7), where A is defined by Eq.(6). In logarithmic coordinates, Eq.(7) can be written as Eq.(8). If AN_o is independent of voltage U, Eq.(8) represents a set of straight lines. If it is plotted in semi-logarithmic coordinate system, these straight lines pass through a point P_3. Consequently the curves of Fig.8 and 9 were plotted semi-logarithmically; the resulting characteristics are shown in Fig.12 and 13. From these characteristics, it is again possible to determine the activation energy of silicon. The results are in good agreement with the previous values. The set of the tangents in Fig.8 and 9, which pass through point P_2 can be expressed by

$$\frac{J_{pr}}{J_{pr1}} \simeq \left(\frac{eU}{W_i}\right) \frac{\beta}{kT} \qquad (11)$$

Card 4/6

83993

Z/017/60/049/010/002/002
E192/E482

Analysis of Voltage-Current Characteristics of Silicon Diodes

where J_{pr1} is the current density at point P_2. The quantity β in Eq.(11) represents the diffusion potential V_d. This is given by

$$V_d = kT \ln \frac{n_n}{n_p} \qquad (12)$$

By combining these equations with the preceding formulas, it is found that the maximum diffusion potential is expressed by $V_{d\,max} = \alpha W_i$. From this it is concluded that by increasing the doping in a diode, point P_2 is shifted and the density of the forward current is increased. This was verified by means of a non-doped type-p diode; the characteristics of this device are shown in Fig.15 and 16. By comparing this with Fig.9 and 13, it is found that the inflection of the characteristics occurs at higher current densities in the presence of doping. The doping also increases the diffusion potential. The forward characteristic of n- and p-type junctions are also used to determine the ohmic drop in the junctions. The authors thank M.Kubat and A.Bürger of CKD Stalingrad for help in their work and for lending the n-type diodes, to Dr.Trousil of the Czechoslovak Academy of Sciences for

Card 5/6

83993
Z/017/60/049/010/002/002
E192/E482

Analysis of Voltage-Current Characteristics of Silicon Diodes

supplying the p-type material, and to J.Kříž and J.Ladnar for preparation of the p-diodes. There are 17 figures and 20 references: 11 Czech, 2 Soviet, 6 English and 1 German.

ASSOCIATION: Státní výzkumný ústav silnoproudé elektrotechniky (State Research Institute for Power Engineering)

SUBMITTED: December 18, 1959

Card 6/6

84116

9.4300 (1035, 1138, 1143)

Z/017/60/049/011/011/013
E073/E535

AUTHORS: Husa, Václav, Engineer Doctor, Cihelka, Jaroslav, Engineer and Kříž, Josef

TITLE: Influence of the Ambient Atmosphere on the Surface Conductivity of Silicon

PERIODICAL: Elektrotechnický obzor, 1960, Vol.49, No.11, pp.596-600

TEXT: The paper presents a description of the measuring methods applied in the investigation of the influence of the external atmosphere upon the surface conductivity of silicon of the types p and n. The influence of moist nitrogen and dry oxygen was experimentally investigated. A sketch of the test-rig is shown in Fig.1. During the tests the temperature was maintained at 20°C. At first, nitrogen with increasing moisture content was fed in until the nitrogen had a 100% relative humidity. This was followed by feeding in dry oxygen so that the relative humidity dropped slowly to 30%. Following that, the cycle was repeated. It was found that the duration of the cycle did not affect the results. The inverse current increases with increasing relative humidity above 50%.

Card 1/3

84116
Z/017/60/049/011/011/013
E073/E535

Influence of the Ambient Atmosphere on the Surface Conductivity of Silicon

At the instant of feeding in oxygen there was a steep increase in the inverse current. With increasing humidity the conductivity has a minimum at about 50% humidity, whilst the presence of oxygen brings about an increase in the surface conductivity. In the case of n-type junctions, the surface conductivity increases monotonously with humidity without there being a minimum and with increasing oxygen content the surface conductivity decreases. A physical interpretation of the phenomena is given. Humidity represented by the OH group acts to the outside as a dipole with a positive charge so that it attracts surface electrons and intensifies type n conductivity. On the other hand, in the case of type p it repulses the free holes and,as a result of that, the surface concentration of the holes decreases. The oxygen has an electro-negative effect: it repulses free electrons on type n junctions, i.e. it weakens type n junctions,and it attracts holes in the case of type p junctions, i.e. it intensifies the type p junctions. On the basis of the obtained results

Card 2/3

84116

Z/017/60/049/011/01?/013
E073/E535

Influence of the Ambient Atmosphere on the Surface Conductivity of Silicon

it is stated that the type of conductivity can be determined in certain cases by means of the oxygen atmosphere. The conductivity increases monotonously with increasing oxygen content in the atmosphere in the case of type p junctions and decreases monotonously with increasing oxygen in the atmosphere in the case of type n junctions. Increase in the humidity brings about a monotonous increase in the surface conductivity for type n junctions, whilst for type p junctions it brings about a drop at first until a certain minimum is reached and from then onwards the surface conductivity increases. p-type junctions are more stable with respect to humidity than n-type junctions. n-p-n transistors from p-silicon with a specific resistance of 10 Ω cm are practically stable with respect to humidity. There are 6 figures and 4 references: 2 Czech, 1 Soviet and 1 English.

ASSOCIATION: Státní výzkumný ústav silnoproudé elektrotechniky (Electrical Engineering State Research Institute)

SUBMITTED: July 20, 1960

Card 3/3

38197

S/058/62/000/004/160/160
A061/A101

9.4340

AUTHORS: Husa, V., Kříž, J., Ladnar, J.

TITLE: Production technique for silicon semiconductor diodes

PERIODICAL: Referativnyy zhurnal, Fizika, no. 4, 1962, 24, abstract 4-4-47v P (Chekhosl. pat. kl. 21 g, 11/02, no. 97215, 15.11.60)

TEXT: The production technique suggested for silicon alloys designed for semiconductor power diodes is characterized by the fact that the pickling agent, consisting of 1 part of concentrated HNO_3 and 3 parts of concentrated HCl, is applied to the contact surface of a fused-in gold electrode and a silicon plate. After washing with distilled water, the completion of manufacturing semiconductor diodes is continued with the conventional technical processes. By the new method, the electrical properties of semiconductor diodes are improved significantly without any substantial increase of manufacturing costs.

A. S.

[Abstracter's note: Complete translation]

Card 1/1

S/194/62/000/004/076/105
D295/D308

AUTHORS: Cihelka, Jaroslav, Černý, Ladislav, Husa, Václav, Kříž, Josef and Ladnar, Josef

TITLE: Device for the stabilization of the operation of semiconductor-rectifier sections connected in parallel (Patent)

PERIODICAL: Referativnyy zhurnal, Avtomatika i radioelektronika, no. 4, 1962, abstract 4-5-56f (Czechosl. pat., cl. 21d2, 12/02; 21g, 11/02; 21d3, 2, no. 97375, 15.11.60)

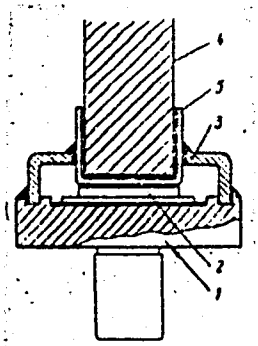
TEXT: The principle of the distribution of the cooling medium in rectifiers with parallel-connected semiconductor diodes is outlined. When diodes are connected in series or in parallel, the problem of temperature stability is especially difficult, since it is impossible in practice to choose diodes having exactly the same characteristics and, in particular, the same temperature dependence on the current-voltage characteristic, which would enable us to use for them a common equipment for cooling or temperature regula-

Card 1/2

A silicon diode ...

S/194/62/000/004/047/105
D201/D308

4



Card 2/2

HUSA, Vaclav, inz., dr.; LADNAR, Josef

Diffusion computation profiles of flat transistors. Slaboproudy obzor 23 no.2:119-120 F '62.

HUSA, Vaclav, inz., dr.; CIHELKA, Jaroslav, inz.

Recent research in semiconductors. El tech obzor 51 no.1:44-45 Ja '62.

1. Statni vyzkumny ustav silnoproude elektrotechniky, Bechovice

HUSA, Vaclav, inz., dr.; CIHELKA, Jaroslav, inz.

Automatic semiconducting rectifier. El tech obzor 51 no.2:90-91. F '62.

1. Statni vyzkummy ustav silnoproude elektrotechniky, Bechovice.

Z/017/62/051/003/002/002
D291/D304

AUTHORS: Husa, Václav, Doctor, and Cihelka, Jaroslav, Engineers

TITLE: Measuring the frequency characteristics of air-blast circuit breakers with the aid of the successive flash-over method

PERIODICAL: Elektrotechnický obzor, v. 51, no. 3, 1962, 114-117

TEXT: The article describes the use of the successive flash-over method to determine the dependence of the breaking capacity on the natural frequency of the recovery voltage of air-blast breakers. This method which has already been described by the authors of this article in a previous paper (Ref. 1: Elektrotechnický obzor (1960), no. 8, pp 417-420), has the advantage that conventional short-circuit tests are avoided and breaker poles are less damaged during tests. The shorting and measuring circuit, according to the new method, comprises capacities parallel connected to the serial blowout contacts. These capacities are dimensioned so that, when the short-circuit current is cut off,

Card 1/3

the entire recovery voltage appears on the first blowout contact pair and has then a certain frequency (f_1). In case the first contacts do not break, the entire recovery voltage appears on the second contact pair and has then a certain frequency (f_2). The same procedure occurs when the second contacts do not break. By increasing the short-circuit current, recovery-voltage frequencies (f_1, f_2, and f_3) are also increased. When the short-circuit current reaches a certain value, a flashover occurs on the first blowout contacts, and the first point of the frequency characteristics is thus given. Further reference points of the frequency characteristic are determined by a further increase of the short-circuit current at instances when flashovers occur on the second and third blowout contacts. This method was used to measure the frequency characteristics of a CP 405/22-600 and a new type of AEG-Kassel 22 kV, 400 mva air-blast circuit breaker. Obtained results were in good agreement with values previously obtained by short-circuit tests. There are 9 figures, 2 tables and 2 Soviet-bloc references. (Technical Editor: Engineer K. Bauer).

Card 2/3

Measuring the frequency ... Z/017/62/051/003/002/002
D291/D304

ASSOCIATION: Státní výzkumný ústav silnoproudé elektrotechniky (State Research Institute for Heavy-Current Engineering)

SUBMITTED: December 18, 1959

Card 3/3

HUSA, Vaclav, inz., dr., kandidat technickych ved; CIHELKA, Jaroslav, inz.

Controlled silicon diode made by the Siemens factory. El tech obzor 51 no.10:550 O '62.

1. Statni vyzkumny ustav silnoproude elektrotechniky, Bechovice.

HUSA, Vaclav

General Assembly of the International Committee of Historical Sciences in London. Vestnik CSAV 71 no.5:601-602 '62.

1. Clen korespondent Ceskoslovenske akademie ved.

BYDZOVSKY, J., inz.; HUSA, V., inz. dr. DrSc.

Noncontact direct-current motor. El tech obzor 53 no.10:574 O '64.

1. State Research Institute of Heavy Current Engineering, Bechovice.

BENA, J., dr.; SOUDEK; MALEC, Zd.; STAREK; MICHALICA, Karel, inz.;
HUSA, V., inz. dr., ScC.; KRIZ, J.

Reports. Slaboproudy obzor 24 no.7:423-428 Jl '63.

HUSA, Vaclav, ins., dr., kandidat technickych ved; CIHELKA, Jaroslav, ins.

Oscillatory processes in semiconductor rectifiers of transductor connections. El tech obzor 52 no.5:264-265 My '63.

HUSA, Vaclav, inz. dr., kandidat technickych ved; CIHELKA, Jaroslav, inz.

Optical quantum generators, lasers, powerful sources of electromagnetic waves. El tech obzor 52 no.6:318-320 Je '63.

HUSA, Vaclav, inz. dr., kandidat technickych ved; CIHELKA, Jaroslav, inz.

A new heavy-duty silicon transistor made by Siemens Factory. El tech obzor 52 no.6:323-324 Je '63.

1. Statni vyzkumny ustav silnoproude elektrotechniky, Bechovice.

HUSA, Vaclav, inz. dr., kandidat technickych ved; CIHELKA, Jaroslav, inz.

Operation of controlled silicon diodes. El tech obzor 52 no.6: 325-326 Je '63.

HUSA, Vaclav, inz. dr., kandidat technickych ved; KRIZ, Josef; LADNAR, Josef; LUXA, Frantisek

Contribution to the technology of the silicon Mesa power transistor. El tech obzor 52 no.10:538-540 O '63.

1. Statni vyzkumny ustav silnoproude elektrotechniky.

CIHELKA, Jaroslav, inz.; HUSA, Vaclav, inz. dr., kandidat technickych ved

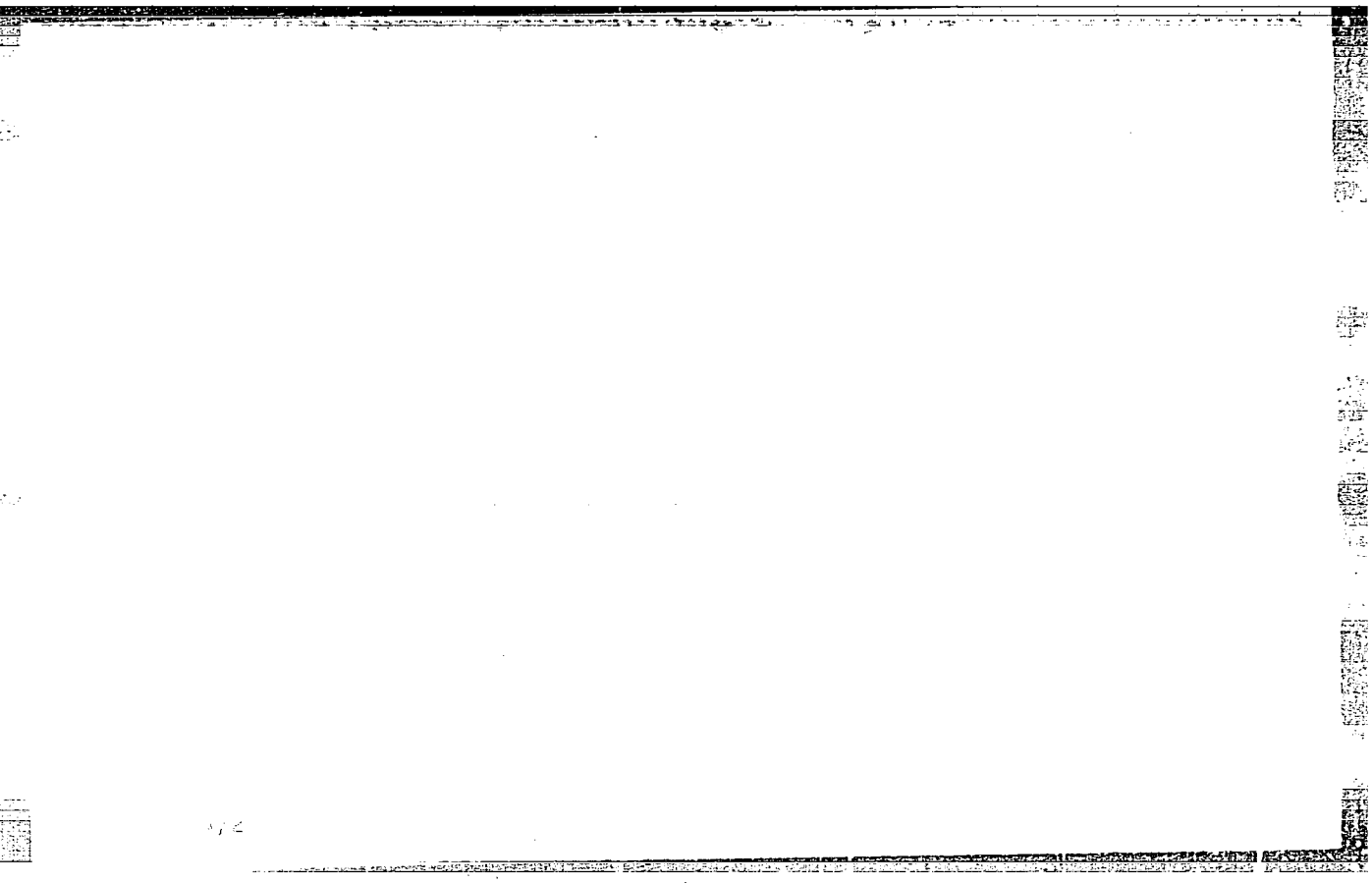
Measurement of characteristics on the silicon power transistor of the State Research Institute of Heavy-Current Engineering. El tech obzor 52 no.10:540-544 O '63.

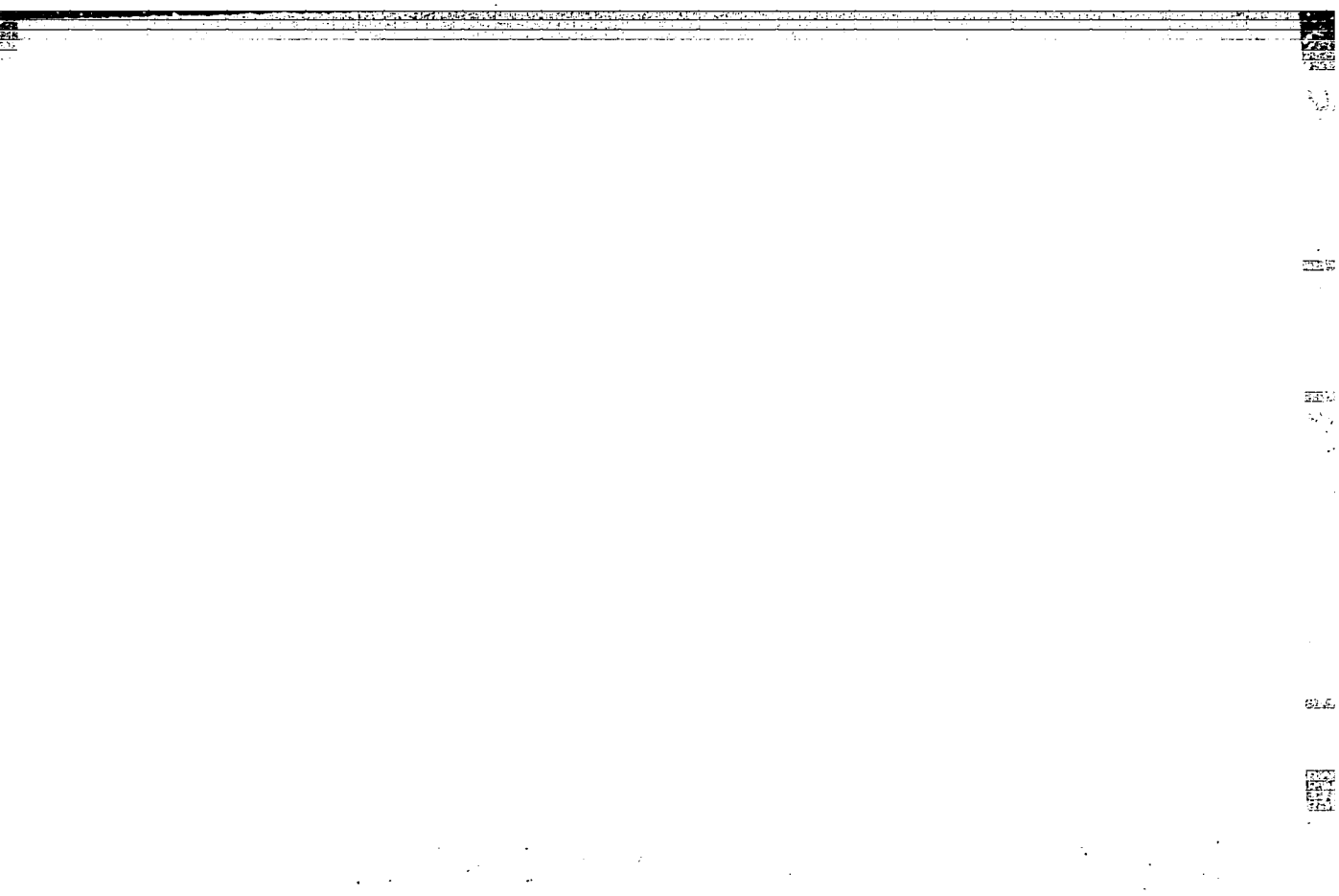
1. Statni vyzkumny ustav silnoproude elektrotechniky.

HUSA, Vaclav, inz., kandidat technickych ved; CIHELKA, Jaroslav, inz.

Direct-current amplifier with silicon valves for control purposes. El tech obzor 52 no.10:570-571 O '63.

1. Statni vyzkumny ustav silnoproude elektrotechniky.





L 23676-66 EPF(n)-2/T/EWP(t)/EWA(h) IJP(c) JD/WW/JG/AT

ACC NR: AP6009346 (A) SOURCE CODE: CZ/0078/65/000/011/0013/0013

AUTHOR: Husa, Vaclav (Engineering, Doctor of Sciences, Pecky); Kriz, Josef; Ladnar, Josef (Prague); Luxa, Frantisek (Horni Pocernice)

ORG: none

TITLE: Manufacture of p-type diffusion silicon element. Pat. No. PV 1792-63

SOURCE: Vynalezy, no. 11, 1965, 13

TOPIC TAGS: silicon element, collector emitter, gallium compound, hole conduction

ABSTRACT: An Author Certificate has been issued for a method of manufacture of a p-type diffusion silicon element by a two-phase difussion process. The element base consists of two different conductivity layers where the layer of lower conductivity is adjacent to the region of the collector, while the layer of higher conductivity is close to the region of the emitter. The p-type conductivity region is created by a two-phase diffusion process, with constant temperature of the preheated silicon plate during each phase. The first diffusion phase takes place 1200-1350C for a period of 15 min to 5 hr. Callium oxide heated to 750 -- 200C is used as the doping compound in an amount capable of evaporating in one quarter of the given time. After the completion of the first phase, the plate temperature is lowered to 900 -- 1250C at which temperature the second phase diffusion takes place in a period of 15 min to 2 hr, again with gallium oxide as the doping compound heated to 800 -- 1200C.

Card 1/2

L 23676-66

ACC NR: AP6009346

Hydrogen is used as the gas carrier in both phases. [KP]

SUB CODE: 20/ SUBM DATE: 06Apr65/

Card 2/2

ACC NR: AP6009347 (A) SOURCE CODE: CZ/0078/65/000/011/0013/0013

INVENTOR: Husa, Václav (Doctor of sciences, Doctor, Engineer; Počky); Cihelka, Jaroslav (Engineer; Prague); Černý, Ladislav (Engineer; Sadská); Kříž, Josef and Ladnar, Josef (Prague); Luxa, František (Horní Počernice)

ORG: none

TITLE: A two phase semiconductor element CZ Pat. No. PV 5496-63, Class 21g

SOURCE: Vynalezy, no. 11, 1965, 13

TOPIC TAGS: semiconductor theory, semiconductor research, phase composition, semiconductor band structure

ABSTRACT: A two-phase semiconductor element built up on semiconductor base plate, with a collector with first and second base formed as a layer into the semiconductor base plate along its entire surface on one side, with a first and second emitter formed as a second layer into the first layer. The contact of the second base is at the same time the contact of the first emitter, with feed connectors to the collector, the first base, and, if applicable, to the second base and second emitter. The first emitter is shaped in the form of a strip and the second emitter in the form of a comb. The relative position of the two emitters is such that the strip forming the first emitter is equidistant from all the ends of the comb forming the second emitter. On the first layer there is formed a contact of the first base in the shape of a strip and also a contact of the second base in the form of a comb. On the comb forming the

Card 1/2

second emitter there is formed a contact in the shape of a comb and the parts of the comb engage mutually. The relative position of the contacts is such that the strip forming the contact of the first base is equidistant from the yoke of the comb forming the contact of the second base. The relative position of the strip forming the first emitter and the contact of the second base is such that the yoke of the comb forming the contact of the second base also forms the contact of the first emitter along the part of the strip forming the first emitter.

SUB CODE: 20 / SUBM DATE: 07Oct63

Card 2/2

ACC NR: AP6035301 (A) SOURCE CODE: CZ/0078/66/000/009/0019/0020

AUTHOR: Novotny, Vladimir (Engineer; Tabor); Husa, Vaclav (Doctor; Engineer; Doctor of sciences; Pecky); Kriz, Josef (Prague); Bydzovsky, Jan (Engineer; Zasmukh); Ladnar, Josef (Prague); Luxa, Frantisek (Horni Pocernice)

ORG: none

TITLE: Ignition equipment for jet and turbojet engines. CZ Pat. No. PV 1920-65

SOURCE: Vynalezy, no. 9, 1966, 19-20

TOPIC TAGS: power plant component, fuel igniter, engine ignition system, jet engine, jet engine component, turboprop engine, turboprop engine component, spark plug, low voltage spark plug

ABSTRACT: Ignition equipment, especially for use with aircraft jet and turboprop engines, is introduced. It has a low-voltage spark plug and is fed by d-c supply. The secondary winding of the induction coil is connected through the rectifier to the capacitor. The sparking circuit is connected in parallel to the capacitor and connected in series with the low-voltage spark plug. One end of the primary winding of the induction coil is connected to the first pole of the d-c supply. The other end

Card 1/2

is connected to the outlet of the common collector for the composite two-step transistor and the outlet of the emitter of the output transistor which is connected to the other pole of the d-c supply and another resistor which is connected through the other pole of the d-c supply. [KS]

SUB CODE: 21/SUBM DATE: 24Mar65/

Card 2/2

CERVENY, L., inz.; NEMEC, M.; HUSAK, B., inz.

Removable coatings protecting electric machines during the impregnation of winding. Strojirenstvi 12 no.7:520-522 Jl '62.

1. Statni vyzkumny ustav ochrany materialu, Praha (for Cerveny and Nemec). 2. Hutni projekt, Praha (for Husak).

Husak, J.

Electric equipment of cranes according to the Czechoslovak state standard CSN 34 1681. p. 122.

Vol. 10, no. 4, Apr. 1955.
ELEKTROTECHNIK

SO: Monthly List of East European Accession, (EEAL), LC, Vol. 4, No. 9, Sept. 1955, Uncl.

L 45315-66 EWT(m)/EWP(t)/ETI/EWP(k) IJP(c) JD/HW

ACC NR: AP6030218 SOURCE CODE: CZ/0057/66/000/003/0128/0131

AUTHOR: Husak, Jiri (Engineer)

ORG: East Slovakian Iron Works, Kosice (Vychodoslovenske zelezarny)

TITLE: New unit for hot rolling of wide steel plates at the East Slovakian Iron Works is in operation

SOURCE: Hutnik, no. 3, 1966, 128-131

TOPIC TAGS: hot rolling, rolling mill, pipe, cold rolling

ABSTRACT: The East Slovakian Iron Works can produce steel plate of thicknesses 0.18 to 10 mm. The plate can be used to produce welded pipe and formed beams. At the beginning of 1964 a 5 mill tandem for cold rolling was started up. This mill used to be supplied with hot rolled coils by Klement Gottwald Nova Hut Iron Works, or by imported steel. The new unit which started producing in 1966 can roll wide plates and slabs. The first coil was rolled in November 65; plates with thickness of 3.8 to 8 mm were rolled on the mill. Details of the unit are presented. Orig. art. has: 1 figure. [JPRS: 36,646]

SUB CODE: 13 / SUBM DATE: none

Card 1/1

HUSAK, Karel

Information from abroad. Tech praca 15 no.10:Supplement:
Naterove hmoty a natery '63.

HUSAK, Karel

News from abroad. Tech prace 15 no.9:Supplement: Naterova hmoty a natery. 15 no.9:insert 8'63.

HUSAK, Pavel, inz.

The CZ 250 motorcycle. Automobil Cz 8 no.7:2-4 Jl '64

HUSAK, Stanislav

SURNAME, Given Names

Country: Czechoslovakia

(?)

Academic Degrees: DVM

Affiliation: First Internal Clinic, Veterinary Faculty (I interni klinika veterinarni fakulty) Head /prednosta/ Prof Dr Karel SOBRA , Brno

Source: Prague, Veterinarstvi, Vol 11, No 10, Oct 1961; pp 372-376

Data: "Artificial Nutrition in Horses in Connection with Treatment of Tetanus"

GPO 981643

HUSAK, STANISLAV

5

HUSAK, Given Names

Country: Czechoslovakia

Affiliation: Drs. M. & M.: Chair of Medicinal Chemistry, Physics and Veterinary Toxicology Veterinary College (Katedra lékarske chemie, fyziky a toxikologie veterinarni fakulty VSH)/Director Prof A. JANICEK DVM/; Dr. H.: First Internal Clinic (I. interni klinika)/Director Karel SOBRA DVM/ Brno

Source: Prague, Sbornik CSAZV-Veterinarni Medicina Vol 6(34), No 9, Sep 61; pp 691-704

Date: "Changes of Serum GOT and GPT activity in Horses after Administration of CCl_4 with Note of Total Bilirubin and Cholesterol Changes, Clinical Condition and Liver Tissue Morphology"

HRUBAN, Vojtech; DVM
MAIEROVA, Vlasta; Magister of Pharmacy
HUSAK, Stanislav; DVM

L 24153-66 DIAAP

ACC NR: AP6014980 SOURCE CODE: CZ/0038/66/000/001/0025/0028

AUTHOR: Husak, Vaclav; Kleinbauer, Karel; Erber, Jiri

ORG: Radioisotope Division, Faculty Hospital, Olomouc (Radioisotopove oddeleni fakultni nemocnice)

TITLE: Possibility of absolute measurements of radioisotope activity using scintillation gamma spectrometry

SOURCE: Jaderna energie, no. 1, 1966, 25-28

TOPIC TAGS: scintillation spectrometer, gamma spectrometer radioisotope, radioactivity measurement

ABSTRACT: Activity measurements that are made with scintillation crystals have significant errors, which may be ascribed to slight differences in the crystals, e.g., different thicknesses in the aluminum covers or in the reflecting layers. More precise measurments were made by a method in which the analyzer channel was placed so as to include the whole photopeak. The low-energy part of the photopeak is thus included, though a small part of the Compton spectrum is neglected. Measurements can then be made within 1 or 2 percent. Measurements made on ^{137}Cs, ^{58}Co, ^{131}I, ^{198}Au, ^{203}Hg, ^{131}I, and ^{51}Cr with plane or well-type scintillation crystals or beta-gamma coincidence method are compared with standard values. The dependence of the performance of plane and well-type scintillation crystals (NaI(Tl)) on the energy of the measured activity is shown mathematically and graphically. This paper was presented by I. Bucina. Orig. art. has: 5 figures, 6 formulas, and 1 table. [NA]

SUB CODE: 18 / SUBM DATE: none / ORIG REF: 007 / OTH REF: 005

Card 1/1 UDC: 543.52: 539.166.07: 615.849

ERBAN, Jiri; KUNDERA, Oldrich; HUSAK, Vaclav; KLEINBAUER, Karel

Gammagraph with background suppression. Jaderna energie 9 no.7:235-238 Jl '63.

1. Ustredni dilna lekarske fakulty, Universita Palackeho; Radioisotopove oddeleni lekarske fakulty, Universita Palackeho, Olomouc.

HUSAK, V.

Experience with picking hops by machine.

p. 438. (Mechanisace Zemedlstvi. Vol. 7, No. 19, Oct. 1957, Praha, Czechoslovakia)

Monthly Index of East European Accession (EEAI) LC. Vol. 7, No. 2,
February 1958

HUSAK, V.

About a repair shop on collective farms. p. 260.

MECHANISACE ZEMEDELSTVI. Praha, Czechoslovakia. Vol. 9, no. 11, Nov. 1959.

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

Uncl.

HUSAK, V.

Reactors in medicine. Jaderna energie 10 no.11:418-421 N '64.

Nuclear Medicine

UDC 615.849.7-082.4

CZECHOSLOVAKIA

WIEDERMANN, M.; HUSAK, V.; KUKACKA, R.; KUBA, J.; Dept. of Radioisotopes, Faculty Hospital and Med. Faculty, Palacky University (Radioizotopove Oddeleni Fakultni Nemocnice a Lek. Fak. PU), Olomouc, Head (Vedouci) Dr M. WIEDERMANN; Krajska Station of Hygiene and Epidemiology (Hygienicko Epidemiologicka Stanice) Ostrava, Director (Reditel) Dr L. BAJGAR.

"Calculation of the Necessary Period of Hospitalization During Therapeutic and Diagnostic Administration of Radioactive Isotopes."

Prague, Casopis Lekaru Ceskych, Vol 105, No 41, 12 Oct 66, pp 1107 - 1110

Abstract [Authors' English summary modified]: Minimum periods of hospitalization after the administration of radioactive isotopes are discussed. The criterion should be the excreted activity and the intensity of radiation emitted by the patient. 1 Table, 4 Western, 4 Czech references. (Manuscript received Oct 65).

1/1

KUBA, J.; HUSAK, V.; WIEDERMANN, M.

Simultaneous use of radioactive iron and chromium in the diagnosis of anemia. Cesk. rentgen. 17 no.5:306-316 S '63.

1. Radioizotopove oddeleni fakultni nemocnice v Olomouci, vedouci MUDr. M. Wiedermann.

(IRON ISOTOPES) (CHROMIUM ISOTOPES)
(ANEMIA) (MYELOFIBROSIS)
(ANEMIA, HEMOLYTIC) (ANEMIA, APLASTIC)

L 18496-66 EWT(m) DIAAP

ACC NR: AP6010231 SOURCE CODE: CZ/0038/65/000/005/0170/0178

AUTHOR: Husak, Vaclav--Gushak, V.; Kleinbauer, Karel--Kleynbauer, K.; Wiedermann, Milos--Vidermann, M.

ORG: Department for Radioisotopes, Faculty Hospital, Olomouc (Radioizotopove oddeleni fakultni nemocnice)

TITLE: Investigation of the design and experimental properties of multichannel focussed collimators used in gammagraphy

SOURCE: Jaderna energie, no. 5, 1965, 170-178

TOPIC TAGS: collimator, radiology, gamma radiation, gamma detection

ABSTRACT: The theoretical basis of multichannel focussed collimators is discussed. Two different focussed collimators are compared with a one-hole cylindrical collimator in respect to resolution sensitivity and contrast. With equal sensitivity, focussed collimators have better resolution and give better contrast of the gammagraphic record. Not only the resolution and sensitivity, but also the dimensions of the pictured area should influence the selection of a collimator. Focussed collimators are needed for good gammagrams in clinical practice.

The authors thank the Brigade of Socialist Labor of the Moravia n.p. in Marianske Odele for the preparation of the focussed collimators. The paper was presented by S. Hupka. Orig. art. has: 13 figures and 3 tables. [JPRS]

SUB CODE: 06, 20, 18 / SUBM DATE: none / ORIG REF: 003 / OTH REF: 010

Card 1/1 UDC: 616-073.75

KRUTA, V.; BRAVENY, P.; HLAVKOVA-STEJSKALOVA, J.; HUSAKOVA, B.

Restoration of myocardial contractility and inotropic effects (ouabain, quinidine, tyramine, theophylline and acetylcholine) in guinea pigs and rats. Sor. med. fac. med. Brunensis 36 no.1/2:1-26 '63.

1. Katedra fysiologie lekarske fakulty University J.E. Purkyne v Brne Vedouci prof. MUDr. DrSc. Vladislav Kruta.
(MYOCARDIUM) (TYRAMINE) (THEOPHYLLINE)
(ACETYLCHOLINE)

HUSANU, O.

Contributions to the knowledge of the gastropods in Moldavia. Comunicari zoolog 2: 183-188 '63.

HUSANU, Ortansa

Vallonia excentrica Sterki 1893, a new species for the fauna of Rumania. Comunicari zoolog 2:245-247 '63.

IUSANU, O.

Contributions to the knowledge of the Scarabaeidae of Rumania. p. 229.

ANALELE STIINTIFICE. SECTIUNEA II: STIINTE NATURALE. Iasi. Rumania.
Vol. 5, no. 1, 1959.

Monthly List of East European Accessions (EEAI) LC, Vol. 9, no. 1,
January 1960.

Uncl.

HUSAR, Ivan, ins.; FABIAN, Rudolf, ins.

Automatic plasma torch welding of 1,5 mm plates from 17 347 material. Zvaranie 13 no.3:87-90 Mr '64

HUSAR, I.; FABIAN, R.

First International Students' Colloquium on Welding in Magedburg. Zvaranie 12 no. 12: 370-371 D '63.

JURISIC, M.; HUSAR, I.

Yugoslav Seminar on Regulation, Measurements, and Automation in 1964. Automatika 5 no.4:334-335 '64.

HUSAR, I.

The 1964 Exhibition of the Yugoslav Seminar on Regulation, Measurements and Automation. Automatika 5 no.4: 335-336 '64.

COUNTRY : Czechoslovakia H-28
CATEGORY :

ABS. JOUR. : RZKhim., No. 21 1959, No. 76566

AUTHOR : Sova, V. and Husar, J.
INST. : Not given
TITLE : Investigation of the Solubility of Milk Proteins in Lactose Solutions

ORIG. PUB. : Prumysl Potravin, 9, No 1, 35-38 (1958)

ABSTRACT : A review article. The behavior of the proteins in raw milk sugar from a number of sources was studied; also investigated were the effect of the isoelectric point on the solubility of the protein complexes in milk sugar at 95° and the effect of varying the ratio of sweet and sour whey [sic] and of neutral salt addition. The residual proteins were separated by dialysis and distillation with freezing out. The study of the residual proteins was carried out by electrophoresis and by

CARD: 1/2

COUNTRY : Czechoslovakia H-28
CATEGORY :

ABS. JOUR. : RZKhim., No. 21 1959, No. 76566

AUTHOR :
INST. :
TITLE :

ORIG. PUB. :

ABSTRACT : nephelometric methods. The causes for the variable separation of residual proteins from lactose solutions were determined. The bibliography lists 15 titles.

D. Yakesh

CARD: 2/2

BOSKOVIC, Milica; RADIC, Jelena; HUSAR-DODER, Marta

Hemorrhage in menopause. Srpski arh. celok. lek. 87 no.2:204-209 Feb 59.

1. Ginekolosko-akuserska klinika Medicinskog fakulteta u Beogradu Upravnik: prof. dr Simisa Tasovac.

(MENORRHAGIA AND METORRHAGIA, menopausal hemorrh. (Ser))
(CLIMACTERIC, FEMALE, compl. uterine hemorrh. (Ser))

LIŠEC, Zdenek; HUSAREK, Ladislav, Inz.

Aircraft Engineering Group and the action plan. Letecky obzor 7 no.12:363 D'63.

HUSAREK, Ladislav, inz.

Pilot navigator equipment VOR. Letecky obzor 6 no.2:56-58 '62.

S/273/63/000/003/001/001
A052/A126

AUTHOR: Husarik, Jozef

TITLE: Valve lift adjustment in internal combustion engines

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk, 39. Dvigateli vnutrennego sgoraniya, no. 3, 1963, 7 - 8, abstract 3.39.44 P.(Czech. pat., cl. 46 b^1, 5/01, 46 b^2, 7/03, 46 c^1, 13, no. 100843, September 15, 1961)

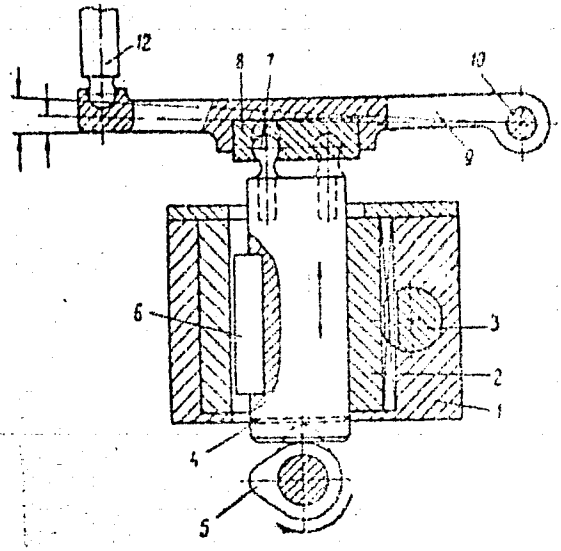
TEXT: An appliance is proposed for the valve lift adjustment in internal combustion engines during operation. Over the cam 5 (see Figure), part 1 is fixed in which the rack bar 3 moves driving the bushing 2. In the latter, the lifter 4 travels on cotter 6. The ball head 7 of the lifter is arranged eccentrically relative to the axis of the circular plate 8 which rotates in the seat of the lever 9. The latter rocks about the axle 10 driving the valve rod 12. When the bar 3 travels, the relation of the lever 9 arms, and by this the valve--lift changes. There is 1 figure.

Card 1/2

S/273/63/000/003/001/001
A052/A126

Valve lift adjustment in internal combustion engines

Figure



Card 2/2

HUSAROVA-DURDIKOVA, Anna, prom.biol., C.Sc.

Preliminary report on caddis fly (Trichoptera) research in Zitny Ostrov. Biologia 16 no.6:472-475 '61.

1. Biologicky ustav Slovenskej akademie vied, Oddelenie zoologie, Bratislava, Sienkiewiczova 1.

(Caddis flies)

HUSAROVA-DURDIKOVA, ANNA

CZECHOSLOVAKIA

HUSAROVA, Anna, of the Department of Zoology (Oddelenie zoologie), Institute of Biology (Biologicky ustav), Slovak Academy of Sciences, Bratislava.

"A Report on the Genus Anopheles in Eastern Slovakia"

Bratislava, Biologia, Vol XVIII, No 4, 63, pp 309-312.

Abstract [Author's German summary, modified]: Report on the collection of Anopheles imagoes, carrying malaria, in 13 areas of Eastern Slovakia during the period from April to October 1960. Three species were found: Anopheles maculipennis s. str. Meigen, Anopheles messeae Falleroni, and Anopheles atroparvus Van Thiel. The extermination of these mosquitoes in the area is due to insecticides applied against both larvae and imagoes, and due to the collectivization of livestock husbandry. Six references, including 4 Czech, 1 Slovak and 1 English.

1/1

HUSARSKI, K.

"Standardization in industrial architecture."

p. 9 (Budownictwo Przemyslowe) Vol. 6, no. 3, Mar. 1957
Warsaw, Poland

SO: Monthly Index of East European Accessions (EEAI) LC. Vol. 7, no. 4, April 1958

HUSARSKI, K.

Tasks and achievements of standardization in industrial building. p. 149.

(INZYNIERIA I BUDOWNICTWO. Vol. 14, No. 4, Apr. 1957, Warszawa, Poland.)

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

HUSARSKI, Lech, inz.

Tele-and Radio Engineering Exhibition in Poland. Przegl techn 79 no.10:443-448 My '58.

HUSARSK[illegible], L.

Telecommunication industry at the 27th Poznan International Fair, p. 752.

PRZEGLĄD TECHNICZNY (Naczelna Organizacja Techiczna)
Warszawa, Poland
Vol. 79, no. 16, August 1958.

Monthly list of East European Accessions Index (EEAI), LC Vol 3, No. 11,
November 1959
Uncl.

HUSARSKI, Lech, inz.

Development problems of wire telecommunication in Poland. Przegl techn 81 no.4:6-8 Ja '61.

DZIEGIELEWSKI, Tadeusz, inz.; HUSARSKI, Roman, inz.

The hinterland and organization of the operations of the dry dock in Gdynia. Tech gosp morska 13 no. 7/8:223-225 J.-Ag '63.

1. Enterprise of Maritime Engineering, Gdynia.

LUPASCU, Gh., prof.; CADARIU, Gn., prof.; BOSSIC-AGAVRILOAEI, Anastas[illegible] COSTIN,F., dr.; HUSCHITT, N., dr.; BOZDOC,I., dr.; MISSITS, Ch., dr. [deceased]; POPOVICI, T., DR.; HAIVAS, Maria, dr.; DOROS, V., dr.

Eradication of an old focus of ancylostomiasis. Microbiologia (Bucur.) 9 no.3:225-230 My-Je '64

1. Lucrare efectuata in Institutul de igiena din Timisoara, Statiunea de malarie-helmintologie din Timisoara si Centrul antihelmintic din Anina.

BEKE, Gyorgy; HUSE, Gaborne; MOLNAR, Irma

Bread preservation by deep freezing. Elelm ipar 16 no.2:54-58 F '62.

1. Hutoipari Kozponti Laboratorium (for Beke). 2. MIRELITE Melyhuto Vallalat(for Huse and Molnar).

BEKE, Gyorgy; HUSE, Gaborne; MOLNAR, Irma

Bread preservation by quick freezing; excerpts from an article.
Musz elet 17 no.11:13 24 My '62.

HUSEK, J. - Strojirenstvi - Vol. 5, no. 4, Apr. 1955.

Constantly improving the quality of products of the machinery industry. p. 241.

SO: Monthly list of East European Accessions, (EEAL), LC, Vol. 4, No. 9, Sept. 1955 Uncl.

HUSEK, J.

Pumps for repumping of hydraulic-storage power plants. p. 21.

CZECHOSLOVAK HEAVY INDUSTRY. Prague, Czechoslovakia. No. 8, 1959.

Monthly list of East European Accessions (EEAI) LC, Vol. 9, no. 2, Feb. 1960.

Uncl.

S/261/62/000/011/005/005
1007/1207

AUTHOR: Hušek Josef

TITLE: Centrifugal pump

PERIODICAL: Referativnyy zhurnal, otdel'nyy vypusk, 34. Kompressory i kholodial'nya tekhnika, 11, 1961, 11, abstract 34.11.89 P. Czech. patent, class 59b, 2, no. 96053, July 15, 1960

TEXT: A patent has been granted for a multistage centrifugal pump in which vortex formation in the intake is eliminated by mounting a special, water guiding ring near the shaft. At one end the slot between the ring and the shaft is covered, while at the other end the slot widens so as to unite with the working chamber of the pump. There is 1 figure.

[Abstracter's note: Complete translation.]

Card 1/1

HUSEK, M., CSc.

Labor productivity indexes and analyses in the European socialist countries. Pod org 17 no.8:372-374 Ag '63.

HUSEK, M.

HUSEK, M. A Grigor'ev's Constant y Increasing Labor Productivity; a book review. p. 286.

Vol. 4, No. 6, June 1955
ZA SOCIALISTICKOU VEDU A TECHNIKU
TECHNOLOGY
Praha, Czechoslovakia

So: East European Accessions, Vol. 5, No. 5, May 1956

L 20657-66 EWP(t) IJP(c) JD

ACC NR: AP5028798 SOURCE CODE: CZ/0009/65/000/009/0537/0540

AUTHOR: Jindra, J.—Yindra, I.; Husek, M.—Gushek, M.; Men, J.—Men, Ya.

ORG: Research Institute for Single Crystals, Turnov (Vyzkumny ustav monokrystalu)

TITLE: Preparation of high-purity sulfur

SOURCE: Chemicky prumysl, no. 9, 1965, 537-540

TOPIC TAGS: sulfur, crystallization, distillation, sublimation, oxidation, thermal decomposition, zone melting

ABSTRACT: The existing methods of high sulfur purification were analyzed and the efficiency of the following methods was tested: crystallization from carbon disulfide, distillation, fractional sublimation in vacuo, zone melting, chemical oxidation by an acid mixture, and thermal decomposition of impurities. Chemical oxidation by H_2SO_4-HNO_3 at elevated temperature followed by distillation and extraction with redistilled water was found to be the most suitable method. The paper is dedicated to Professor Dr. Eng. Frantisek Petr on the occasion of his 60th birthday. Orig. art. has: 2 figures and 1 table. [Based on author's abstract.]

SUB CODE: 07, 11, 20/ SUBM DATE: 29Apr65/ ORIG REF: 003/ OTH REF: 010

Card 1/1 BK UDC: 661.2

GOLIER, S., inz.; HUSEK, S., inz.

Prefabricated shafts for water mains. Vodni hosp 13 no.4:153-155 '63.

1. Vodni stavby, n.p., Praha.

FLEI, Rudolf . Technicka spoluprace: HUSEK, Z.; JUREK, K.

Activities of the Collecting Center for human milk at the Tissue Bank of the Faculty Hospital, Regional Institute of National Health at Hradec Kralove. Sborn. ved. prac. Lek. fak. Karlov. Univ. 8 no.3:321-329 '65.

HUSNIAK, J.; IVANIEUS, R.

The catastrophic flow of ice on the Hron River in March 1954. p. 217.

Vol. 4, no. 7, July 1954
VODNI HOSPODARSTVI
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No.8, August 1956

HUSENICA, J.; INTRIBUS, R.

The catastrophic flow of ice on the Hron River in March 1954. p. 238.

Vol. 4, no. 8, August 1954
VODNI HOSPODARSTVI
Praha, Czechoslovakia

Source: East European Accession List. Library of Congress
Vol. 5, No. 8, August 1956

HUSENICA, J.

GEOGRAPHY & GEOLOGY

Periodicals: GEOLOGICKE PRACE no. 49, 1958

HUSENICA, J. Geologic structure of Plana, a polygenous volcano. p. 161.

Monthly List of East European Accessions (EEAI) LC, Vol. 8, No. 5, May 1959, Unclass.

HUSER, Karel

First liquid oxygen evaporating plant in Czechoslovakia. Sklar a keramik 14 no.11:317-319 N '64.

1. Research and development Institute of Technical Glass, Prague.

L 02192-67 EWT(l)/EWT(m)/T/EWP(t)/ETI IJP(c) JD/JG/GG

ACC NR: AR6031870 SOURCE CODE: UR/0058/66/000/006/D085/D085

AUTHOR: Vaydanych, V. I.; Huseva, N. K.; Triska, T. Y.; Chorniy, Z. P.

TITLE: Effect of methods of growing alkaline iodide crystals on their luminescence properties 27 27 46

SOURCE: Ref. zh. Fizika, Abs. 6D695 B

REF SOURCE: Visnyk L'vivs'k. un-tu. Ser. fiz., no. 2, 1965, 46-48

TOPIC TAGS: crystal, crystal growth, anion impurity, iodide, iodide crystal, photo luminescence, x ray luminescence, crystal impurity, energy transmission

ABSTRACT: The effect of various anion impurities formed in a crystal during its growth (using the Kiropoulos and Stokbarger methods of growing crystals in an inert gas atmosphere), on the luminescence properties of phosphors NaJ-Tl, KJ-Tl, and CsJ-Tl is shown. A decrease in the output of photo and x-ray luminescence in crystals with anion impurities is explained by the assumption that the transmission of energy by Tl luminescence centers, both in the electron-hole and exciton excitation mechanism, takes place at a higher energy level (D-band, P_1-transition). [Translation of abstract] [SP]

SUB CODE: 20/

Card 1/1 egh

HUSICKA, Z.

Research center of aeronautic modeling in people's Czechoslovakia. p. 10

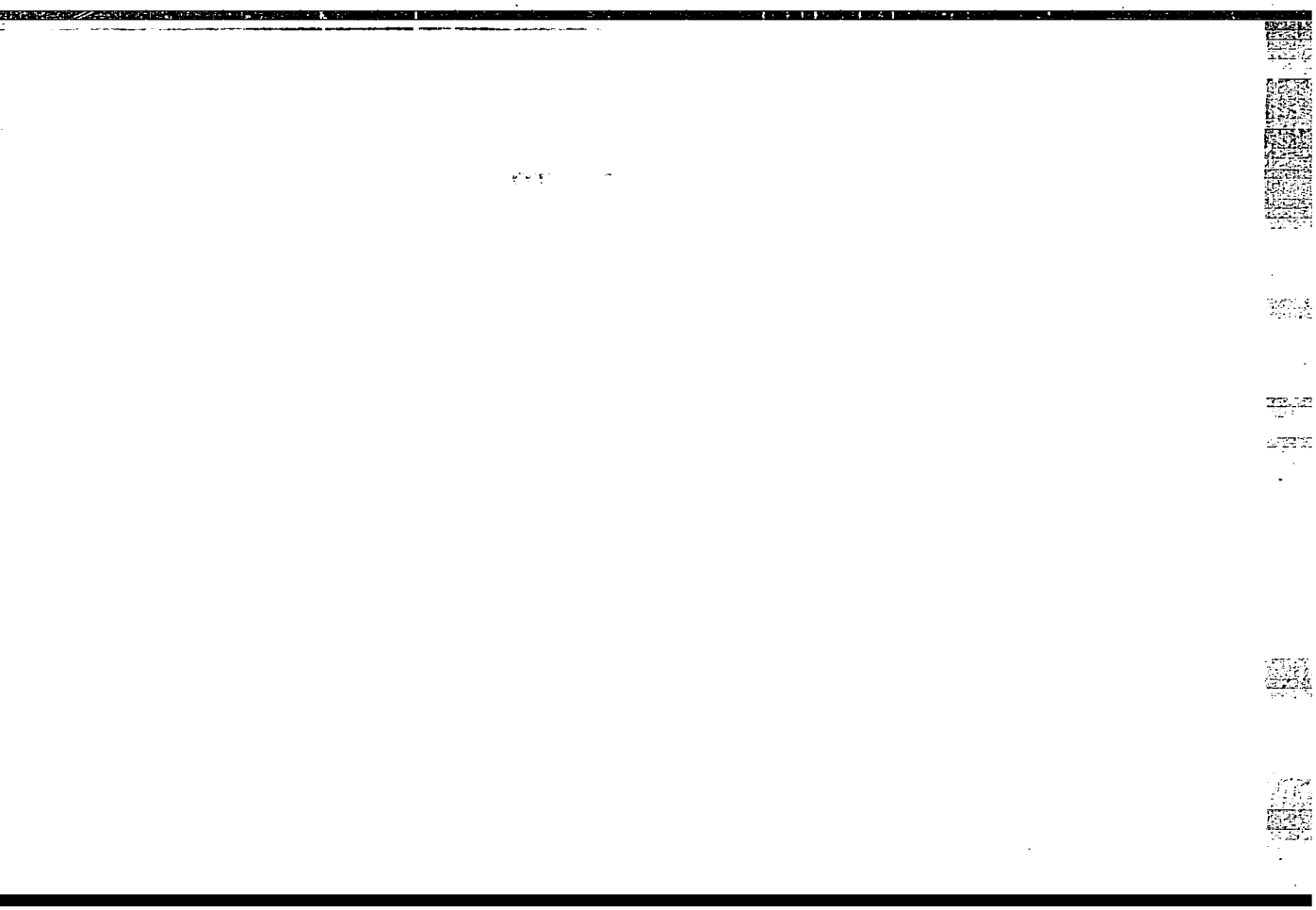
SKRZYDLATA POLSKA. (Ligo Lotnicza) Warszawa, Poland. Vol. 11 no. 26, July 1955.

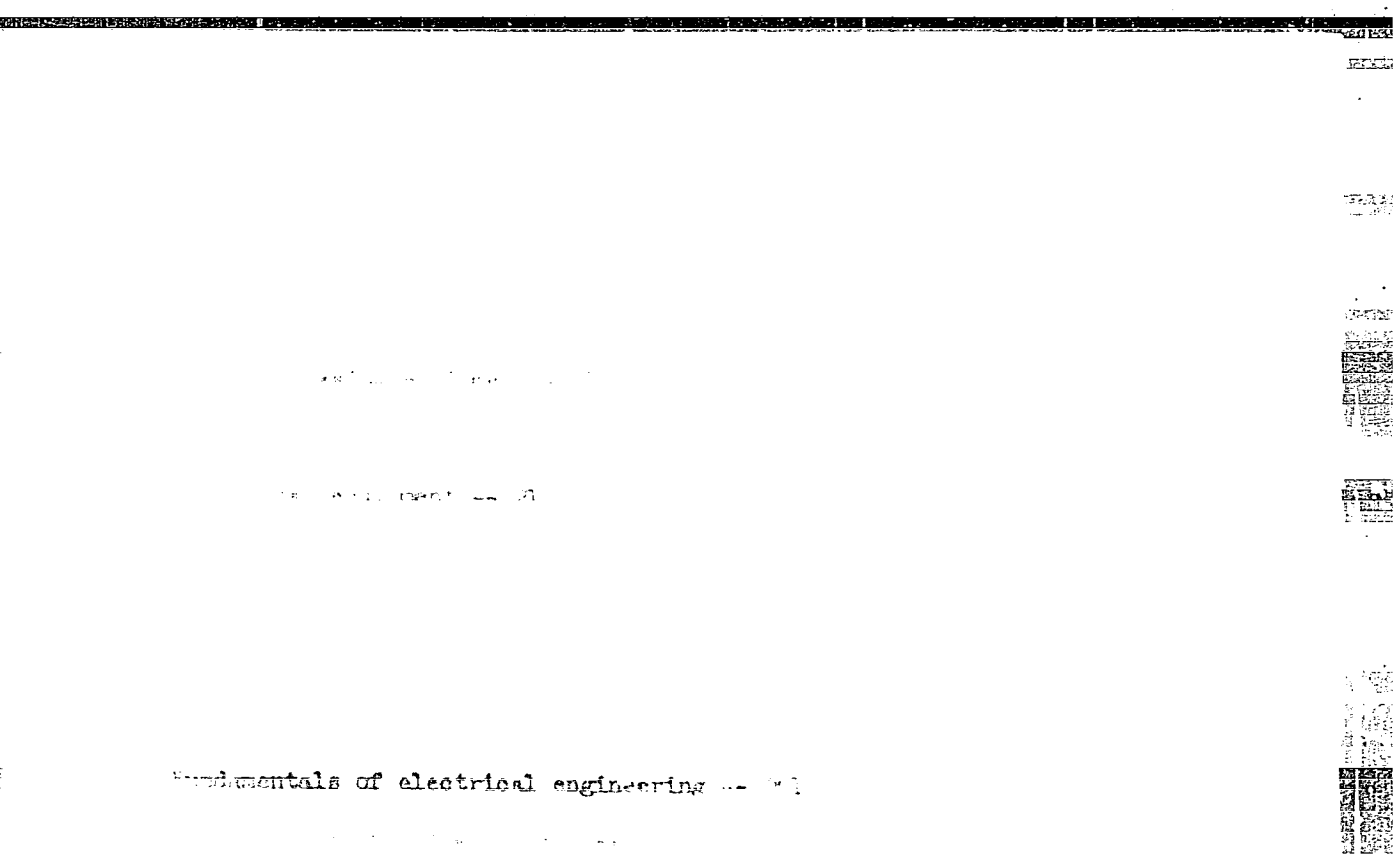
Monthly List of East European accession (EEAI), LC. Vol. 8, No. 9, September, 1959. Uncl.

HUSICZKA, Z.

Fuels. Tr. from the Czech. p. [328a] (SKRZYDLATA POLSKA, Vol. 10, No. 21, May 1954, Warszawa, Poland)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 3, No. 12, Dec. 1954, Uncl.





Fundamentals of electrical engineering

APPROVED FOR RELEASE: Thursday, July 27, 2000 CIA-RDP86-00513R00051831(

HUSKA, A.

Forging gear wheels with preforged gearing, p. 433, STROJIRENSTVI (Ministerstvo strojirenstvi) Praha, Vol. 5, No. 6, June 1955

SOURCE: East European Accessions List (EEAL) Library of Congress, Vol. 4, No. 12, December 1955

HUSKA, A.

Precision of gear forging with preforged gears. p. 65.
STROJIRENSKA VYROBA, Prague, Vol. 4, no. 2, Feb. 1956.

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 5, No. 6, June 1956, Uncl.

HUSKA, A.M., promovany ekonom; KOVAL, S., dr.; KRAUS, E.

Enterprise internal units, their role and development in the building industry. Inz stavby 12 no.8:353-358 Ag '64.

HUSKOWSKI, T.

On the normal at the hypersurface of the affine space A. Bul Ac Pol mat 9 no.3:143-146 '61.

1. Institut Mathematique, Section de Wroclaw, Academie Polonaise des Sciences. Presented by E. Marczewski.

(Spaces, Generalized)

HUSKOWSKI, T. (Wroclaw)

Realization, in affine space, of a linear connection without torsion in a differentiable variety. Annales pol math 16 no. 1:45-51 '64.

KODET, R.;HUSIAR, M.;DVORAK, J.

Pressure respiration with the use of a compensatory appliance and its effect on the human organism. Cesk. fysiol. 9 no.1:23-24 Ja 60.

1. Ustav leteckeho zdravotnictvi, Praha.
(RESPIRATORS)

HUSLAROVA, A.; VYHNANEK, L.; PRUSA, K.

Megacolon with diffuse polyposis. Cesk. gastroent. vyz. 15 no.8: 601-602 D '62.

1. Interni odd. Fakultni polikliniky, prednosta prof. MUDr. K. Herfort, Radiologicka klinika, prednosta prof. MUDr. V. Svab, Chirurgicke odd. Stat. oblastni nemocnice v Motole, prednosta prof. MUDr. B. Niederle.
(MEGACOLON compl) (POLYPI compl) (COLON neoplasms)

SIVANOVA,Z.; HUSLAROVA,A.; SKACHOVA, J.

Health status of patients with Dupuytren's palmar contracture.
Sborn. lek. 66 no.12:357-362 D '64

1. Interni oddeleni polikliniky fakulty vseobecne lekarstvi
University Karlovy v Praze (prednosta - prof.dr. K. Herfort, DrSc.)
a Ustredni laboratore polikliniky fakulty vseobecneho lekarstvi
University Karlovy v Praze (vedouci - prof. dr. J.Komolka, DrSc.)