

TEMPERATURE MEASUREMENT

Temperature Control in the Production Part of a Vertical Drawing Machine Furnace

V. M. OBUKHOV, *Steklo i Keramika*, 1966, 23, (5), 11-12

6% Rh-Pt : 30% Rh-Pt thermocouples are used as temperature sensors in apparatus which stabilises a vertical glass drawing furnace to reduce its temperature oscillation to not more than $\pm 1-1.5^{\circ}\text{C}$.

Platinum Resistance Thermometry in the Range 630 to 900°C

R. J. BERRY, *Metrologia*, 1966, 2, (2), 80-90

Procedures for stabilisation of Pt resistance thermometers at 630-900°C, annealing-out quenching effects and reducing insulation leakage

are based on studies of the performance of commercially-produced, standard instruments. The mica insulation places the 900°C upper limit on them. Insulation leakage at high temperatures, and at low temperatures due to H₂O released from the mica during high-temperature use, is the worst problem.

Measurement of Bath Temperature in the Basic Oxygen Furnace

A. E. SCHRAEDER, *Iron Steel Eng.*, 1966, 43, (5), 137-140

A sinker thermocouple assembly for standard S-type thermocouples has been developed for molten steel temperature measurement in the basic O₂ furnace either during or following the O₂ blow. It is made of cast iron or steel and is as simple and reliable as lance-type thermocouples. No costly additions or modifications to the furnace structure are required.

NEW PATENTS

METALS AND ALLOYS

Ruthenium Alloys

INTERNATIONAL NICKEL LTD.

British Patent 1,032,005

Ductility of Ru is improved by alloying it with 0.25-25 wt.% Re by a powder metallurgy technique.

Manufacture of High Density Alloys

THE GENERAL ELECTRIC CO. LTD.

British Patent 1,032,118

A sintered high density alloy is produced by forming a homogeneous powdered mixture of W and/or Mo and 0.01-10 wt.% one or more Pt group metal, forming a self-supporting compact, heating it at 900-2000°C in a non-oxidising atmosphere so that alloying of the constituents takes place and maintaining the high temperature until the desired degree of densification has been attained.

Metallic Appliances and Components Subjected to Contact with Molten Materials at High Temperature

COMPTOIR LYON-ALEMAND, LOUYOT ET CIE.

British Patent 1,033,317

Metallic appliances which come into contact at high temperatures with glasses, oxides, etc., comprise a composite metallic material consisting of three layers joined by cladding so that there is an inner layer of pure Pt contacting the molten material, an outer layer of Pt-Rh alloy and a central layer of Pt alloy with Ir, Ru, Rh or Os.

Inter-Metallic Compounds and their Preparation

INTERNATIONAL BUSINESS MACHINES CORP.

British Patent 1,035,875

The intermetallic compounds A₃M₂, where A is Gd, Tb, Dy or Ho and M is Pd or Pt, which have good ferromagnetic and mechanical properties, are produced by supporting a finely-divided mixture of the metal powders on a cold Cu hearth in an inert atmosphere, melting a portion out of contact with the hearth, allowing it to solidify, inverting it and repeating several times.

Processing of a Vitreous Composition in a Reducing Atmosphere

BAUSCH & LOMB INC.

U.S. Patent 3,233,993

A container for processing of a vitreous composition in a reducing atmosphere has its cavity lined with Ir or an alloy of 50-100% Ir, 0-50% Rh and max. 20% Pt.

Alloys of Gold with Group VIII Metals

W. C. HERAEUS G.m.b.H.

U.S. Patent 3,238,040

A tension strip for measuring instruments is made of an alloy of 30-80 wt.% Au and the balance Pt, Pd, Ir, Rh, Fe, Co, Ni or their mixtures.

Platinum Group Metal Alloy Tensioning Strips

W. C. HERAEUS G.m.b.H.

U.S. Patent 3,245,781

Tensioning strips which may be used in measuring instruments are made of alloys of 1-50 wt.%, preferably 5-40 wt.%, Fe, Co, Ni, W, Mo, Cu or Ag or their mixtures and balance Pt, Pd and/or Rh.

Precious Metal Laminates

OWENS-CORNING FIBREGLASS CORP.

U.S. Patent 3,248,190

Corrosion resistant and high strength laminates useful for the production of glass fibre manufacture die plates comprise a centre layer of an alloy of 75-100 wt.% Rh and 0-25 wt.% Pt sandwiched between and bonded to opposed metal layers of an alloy of 60-100 wt.% Pt and 0-40 wt.% Rh.

Iridium Alloys

INTERNATIONAL NICKEL LTD.

French Patent 1,421,717

Alloys which may be used for the production of crucibles, wires, electrodes, etc., comprise commercially pure Ir and 0.1-0.5 wt.% Ti and/or Zr, preferably 0.1-0.3 wt.% Ti and 0.2-0.3 wt.% Zr.

CHEMICAL COMPOUNDS

Noble Metal Polyphthalocyanines

MONSANTO CO.

U.S. Patent 3,245,965

Metal polyphthalocyanines, including those of Ag, Pt or Pd, are prepared by heating pyromellitonitrile in an inert atmosphere, at up to 450°C in the presence of an appropriate finely divided metal or its salt.

ELECTROCHEMISTRY

Noble Metal Electrodes

AMALGAMATED CURACAO PATENTS CO. N.V.

U.S. Patent 3,234,110

An electrode comprises a core of Ti or its alloy, a barrier layer of TiO₂ and a coating of Pt, Ir, Rh or their alloys. See also 3,236,756.

Platinum Anode

PITTSBURGH PLATE GLASS CO.

U.S. Patent 3,250,691

A cell for the electrolysis of an aqueous alkali metal chloride solution utilises a platinised anode, which has first been used in such a cell as a cathode and only then as a more efficient anode.

ELECTRODEPOSITION AND SURFACE COATINGS

Process and Solutions for Coating Metals and Alloys

INTERNATIONAL NICKEL LTD.

British Patent 1,030,545

An immersion bath for the chemical plating of Ni or its alloys with Pt group metal comprises an acid aqueous solution of 1-10 g/l Pt, Pd, Rh, or Ru, 64-96 g/l HCl, 0.2-5 g/l Cu and 0-5 g/l Fe(II).

Electrodeposition of Palladium

JOHNSON MATTHEY & CO. LTD.

British Patent 1,035,850

An electroplating bath operated at 15-75°C, pH 7-10 and 1-500 A/ft² current density is in the form of an aqueous neutral or alkaline solution containing an NH₄ salt of a weak organic acid and a Pd compound.

Electroless Deposition of Palladium

AUTOMATIC TELEPHONE & ELECTRIC CO. LTD.

U.S. Patent 3,235,392

A chemical plating bath for the deposition of Pd consists of an aqueous solution containing 1-100 g/l Pd in the form of complexed ions and sufficient sulphonic acid to maintain a pH 1-3.5.

LABORATORY APPARATUS AND TECHNIQUE

Reagent and Apparatus for Gas Detection

E. I. DU PONT DE NEMOURS & CO.

British Patent 1,029,382

A self-regenerating reagent for detecting the presence of CO is prepared by contacting a carrier, e.g. granular SiO₂, with PdCl₂ and HCl and drying the impregnated carrier at 80-90°C.

BRAZING

Brazing Platinum and Alloys thereof

INTERNATIONAL NICKEL LTD.

British Patent 1,033,412

Two pieces of sheet Pt or its alloy are brazed together at a brazing temperature of at least 100°C above the melting point of the brazing metal which is an alloy of Pd and Au or Cu.

Improved Brazing or Soldering Alloys

WESTINGHOUSE BRAKE AND SIGNAL CO. LTD.

British Patent 1,036,245

An improved brazing or soldering alloy is manufactured by heating Ag, Cu and In in a vacuum so that alloying takes place, cooling the alloy, adding Pd, heating in a H₂ atmosphere so that this gas is dissolved in the alloy and then raising the temperature to ensure the alloying of the Pd with the alloy.

CATALYSIS

Catalyst Supports and Catalytic Compositions for Use in the Steam Reforming of Hydrocarbons

IMPERIAL CHEMICAL INDUSTRIES LTD.

British Patent 1,028,753

A steam reforming catalyst comprises an improved support, 5-50 wt.% NiO 0.01-20 wt.% Pt group metal. See also 1,029,235 and 1,032,751-4.

Process for the Preparation of Carbonyl Compounds

SHELL INTERNATIONALE RESEARCH MIJ. N.V.

British Patent 1,029,175

A catalyst system for the preparation of carbonyl compounds by the reaction of an olefine and O₂ at below 350°C and in the presence of steam and halogen and/or hydrogen halide comprises (i) a solid carrier, (ii) Ru, Rh, Os, or Pt but preferably Pd compound, (iii) a compound of Fe, Co, Ni or Group I or VII transition metal, and (iv) a compound of alkali metal of 11-55 at. no.

Preparation of a Glycol Ester

SHELL INTERNATIONALE RESEARCH MIJ. N.V.

British Patent 1,029,319

A glycol ester is prepared by contacting an ethylenically unsaturated compound with a Group VIII noble metal compound, preferably Pd salt, in an anhydrous liquid medium at 0-150°C, 0.1-100 atm and in the presence of an oxidising acid and optionally also a Group IB, IIB, III, IV, V, VI, VII or VIII non-precious metal compound.

Hydrogenation of Polycyclic Aromatics

THE BRITISH PETROLEUM CO. LTD. and GOBLE A.G.

British Patent 1,031,031

Bicyclic aromatic hydrocarbons are hydrogenated selectively by contacting the feed stock with a refractory-supported Pt group metal catalyst at 500-900°F, in the presence of H₂ and at least 0.2 wt. % combined S, preferably at 100-3000 psig.

Cyclohexylamine Process

ABBOTT LABORATORIES *British Patent 1,031,169*

Cyclohexylamine is produced by reacting phenol with NH₃ and H₂ at 15-150 psi, 70-150°C and in the presence of 0.02-2 wt. % Rh, based on the weight of phenol present.

Catalytic Hydrocarbon Conversion

MOBIL OIL CORP. *British Patent 1,031,222*

A hydrocarbon conversion catalyst comprises a mechanical mixture of particles of less than 100μ diameter of (i) a predominantly Al₂O₃ carrier supporting 0.5-5 wt. % group metal and (ii) a porous inert carrier supporting 0.1-40 wt. % rare earth metal oxide.

Hydrogenation Process

SIGNAL OIL AND GAS CO. *British Patent 1,032,838*

An improved process for the selective hydrogenation of mono-cyclic aromatics in a hydrocarbon stream utilises a Pt catalyst.

Hydrocatalytic Cracking of Hydrocarbons

THE BRITISH PETROLEUM CO. LTD.

British Patent 1,032,924

A hydrocracking catalyst comprises a refractory metal oxide supporting 5-75 wt. % Fe group metal

or 0.01-5 wt. % Pt group metal, preferably Pt or Pd.

Preparation of Acetals from Acetylene

IMPERIAL CHEMICAL INDUSTRIES LTD.

British Patent 1,033,837

Acetals are produced by reacting acetylene with a primary or secondary alcohol in the presence of a Pt, Rh, Os or Ru halogen compound.

Manufacture of Hexachlorobenzene and Pentachlorobenzene

UDDEHOLMS A.B.

British Patent 1,034,069

Hexa- and pentachlorobenzenes are manufactured by passing a gaseous mixture of benzene, HCl and O₂ at elevated temperature through a catalyst comprising activated Al₂O₃ supporting CuCl₂ and Ag, Pt and/or Pd chlorides.

Hydrofining and Hydrocracking Process

ESSO RESEARCH & ENGINEERING CO.

British Patent 1,034,457

A N-containing hydrocarbon feed is hydrocracked by first contacting it with a Group VI metal and Group VIII metal supported on a Group IIA, IIIA or IVB metal oxide and then with a crystalline aluminosilicate zeolite comprising 0.01-3.0 wt. % of a Pt group metal.

Oxidation Catalyst

PETER SPENCE & SONS LTD.

British Patent 1,034,621

A catalyst bed for carrying out oxidation processes comprises a thick layer of CuO or γ-Al₂O₃ and a thinner layer of Pt or Pd or optionally some other noble metal.

Manufacture of Vinyl Compounds

FARBWERKE HOECHST A.G.

British Patent 1,035,587

A vinyl compound is produced by reacting C₂H₄, O₂ and a nucleophilic compound having at least one readily removable H atom in the presence of a supported PdO catalyst at 20-300°C and 0.2-20 atm.

Catalytic Treatment of Exhaust Gases

W. R. GRACE & CO.

British Patent 1,036,510

A catalyst for oxidising CO and hydrocarbons present in combustion engine exhaust gases is produced by mixing Al₂O₃ with 5-20 wt. % CuO and 5-20 wt. % MgO, pelleting the mixture, calcining for 2-3 h at 535-760°C and 0-5 at 648°C and finally spraying with Pd nitrate to provide up to 0.03 wt. % Pd.

Catalytic Stereospecific Polymerisation of Butadiene

INSTITUT FRANCAIS DU PETROLE, DES CARBURANTS ET LUBRIFIANTS

British Patent 1,037,001

In the stereospecific, aqueous emulsion poly-

merisation of 1,3-butadiene at -30 to 100°C a mixture of Rh salt and 1,3-cyclohexadiene is used as catalyst.

Catalytic Dehydrogenation of Petroleum Distillate Feed Fraction

MOBIL OIL CORP. *British Patent 1,037,621*

In the production of jet fuels by the catalytic dehydrogenation of a petroleum distillate feed fraction comprising paraffins, naphthenes and aromatics, the preferred catalyst is refractory oxide supported Pt.

Molecular Sieve-Group VIII Noble Metal Hydrocarbon Conversion Catalyst

UNION CARBIDE CORP. *U.S. Patent 3,236,761*

A catalyst for the conversion of hydrocarbons comprises a decationised zeolitic molecular sieve having less than 90% Al atoms associated with cations, an $\text{SiO}_2:\text{Al}_2\text{O}_3$ ratio greater than 3 and 0.05–2 wt.% Group VIII noble metal, preferably Pt or Pd. See also 3,236,762 and 3,236,903–4.

Molecular Sieves Impregnated with Platinum Group Metals

ESSO RESEARCH AND ENGINEERING CO.

U.S. Patent 3,238,117

In the process of conversion of crude oil feedstock by a combination of coking, hydrocracking and reforming steps, a molecular sieve zeolite impregnated with a Pt group metal is used as a catalyst. See also 3,238,118–3,238,120.

Use of Platinum Group Metal Catalysts in the Production of Estrogenic Compounds

COMMERCIAL SOLVENTS CORP.

U.S. Patent 3,239,351–7

New estrogenic compounds and animal growth promoters are produced from fermentation of estrogenic compounds and production involves reduction of an olefinic bond in the presence of a supported Pt or Pd catalyst.

Ruthenium and Rhodium Hydroformylation Catalysts

SHELL OIL CO. (NEW YORK)

U.S. Patent 3,239,566

Aldehydes and alcohols are produced by contacting a mono-olefinic hydrocarbon with CO and H_2 at 100 – 300°C and in the presence of a complex catalyst consisting of Ru and Rh carbonyl in complex combination with trialkylphosphine. See also 3,239,570–1.

Palladium Hydrogenation Catalyst

VELSICOL CHEMICAL CORP. *U.S. Patent 3,240,762*

A new polymer is produced by reacting maleic anhydride at 150 – 500°F with C_6H_6 -soluble cyclopentadiene homopolymer which has 1,4-linkages and has been hydrogenated in the presence of a Pd catalyst to an extent of 60–95%.

Palladium Chloride Cocatalyst in the Production of Acetic Acid

HALCON INTERNATIONAL INC.

U.S. Patent 3,240,805

Pure CH_3COOH is produced by contacting a gaseous mixture of C_2H_4 , O_2 and H_2O vapour at 150 – 300°C and 1 – $1,000$ atm with a refractory metal oxide supported catalyst comprising 0.1–5 wt.% PdCl_2 and 5–20 wt.% V_2O_5 .

Palladium Catalyst for the Selective Hydrogenation of Acetylenes

ESSO RESEARCH AND ENGINEERING CO.

U.S. Patent 3,242,226

Acetylenes are hydrogenated selectively in the presence of diolefines by contacting the hydrocarbon stream at 50 – 500°F and 1 – $1,000$ psig with H_2 and 10 – 250 m^2/g Al_2O_3 supporting 0.01–0.2 wt.% Pd.

Platinum Hydroisomerisation Catalyst

TEXACO INC.

U.S. Patent 3,242,228

A catalyst for the hydroisomerisation of paraffinic hydrocarbons is produced by compositing Al_2O_3 with 0.01–1 wt.% Pt, contacting it at 300 – 600°F with an organic chloride activating agent to introduce 3–10 wt.% Cl_2 , heating it at 400 – $1,000^{\circ}\text{F}$ in contact with HCl to improve catalyst activity and displacing HCl with an inert atmosphere so that the final catalyst contains 2.5–7 wt.% Cl_2 . See also 3,242,229.

Noble Metal Catalyst for the Selective Hydrogenation of Acetylene

VEB LEUNA-WERKE "WALTER ULBRICHT".

U.S. Patent 3,243,387

A catalyst for the selective hydrogenation of C_2H_2 consists of an α - Al_2O_3 carrier supporting up to 5 wt.% each Pd and Ag and 19–80 times their combined amount of Fe present as Fe_2O_3 .

Use of Gauzes Made of Platinum and its Alloys in the Production of Hydrogen Cyanide

MONSANTO CO.

U.S. Patent 3,244,479

HCN is produced by passing a feed mixture of NH_3 , CH_4 and air through a gauze made of Pt or its alloy with Ir, Pd, Rh, at 500 – $1,300^{\circ}\text{C}$ and when necessary reactivating the catalyst by passing first air and then H_2 at temperature gradually decreasing to 150°C .

Pre-sulphided Palladium Hydrocracking Catalyst

GULF RESEARCH & DEVELOPMENT CO.

U.S. Patent 3,244,616

An improved catalyst for the hydrocracking of a hydrocarbon feed-stock free of asphaltic materials and of low N_2 content comprises a refractory metal oxide support composited with pre-sulphided Pd.

Platinum Group Metal Catalysts in the Production of Carbonyl Compounds

UNION OIL COMPANY OF CALIFORNIA
U.S. Patent 3,245,890

Carbonyl compounds and electrical energy are produced simultaneously by connecting, via an electrolytic conductor, an anodic zone containing an acidic aqueous solution of a Pt group metal halide and a cathodic zone containing aqueous electrolyte and then introducing into them respectively, an olefine and an oxidiser and withdrawing the carbonyl compound from the anodic zone.

Platinum Group Metal Reforming Catalysts

MOBIL OIL CORP. U.S. Patent 3,247,099

A catalyst for the reforming of hydrocarbons comprises 0.01–5 wt.% Pt group metal in intimate combination with an alkali metal aluminosilicate which has 6–15 Å pores and has been base-exchanged with a rare earth metal.

Palladium-on-Carbon Hydrogenation Catalyst

CIBA CORP. U.S. Patent 3,247,196

The production of active derivatives of cephalosporin involves a hydrogenation stage in the presence of Pd/C catalyst.

Noble Metal Catalysts in Formaldehyde Production

HUTTENWERK OBERHAUSEN A.G.
U.S. Patent 3,247,254

Formaldehyde is produced by passing a mixture of a lower saturated hydrocarbon and free O or a gas, containing it, through a finely divided pumice catalyst at 400–700°C and then at the same temperature through a metal netting made of Pt, Ir, Rh, Ag, Cu or their alloys.

Hydrocracking and Isomerisation Catalysts

STANDARD OIL CO. U.S. Patent 3,248,316

In a two-stage hydrocracking and isomerisation process for the conversion of olefinic hydrocarbons, the first stage catalyst comprises an acidic cracking component and 0.1–2 wt.% Pt group metal and in the second stage a modified catalyst containing 0.1–1 wt.% Pt group metal.

Activated Platinum Group Metal Oxidation Catalysts

UNIVERSAL OIL PRODUCTS CO.
U.S. Patent 3,248,344

An oxidation catalyst comprising Pt, Pd and/or their alloys as the active component, is activated by first burning hydrocarbon vapours at above 600°F and in excess air so that an oxidised coating is formed on the catalyst surface and then heating at above 1,000°F in a mixed gas stream containing a major proportion of H₂ so that a finely reduced and activated catalyst is obtained.

Platinum Group Metal Isomerisation Catalysts

THE BRITISH PETROLEUM CO. LTD.
U.S. Patent 3,248,448–9

A catalyst system for the isomerisation of olefinic hydrocarbons comprises a halogenated Al₂O₃ support and 0.01–5 wt.% Pt group metal.

Platinum Group Metal Hydrocarbon Conversion Catalysts

THE BRITISH PETROLEUM CO. LTD.
U.S. Patent 3,250,698

A S-containing hydrocarbon feedstock containing mainly petroleum naphtha is autofined by contacting it at 700–800°F and 100–600 psig with a refractory metal oxide supporting 0.01–5 wt.% Pt group metal.

Platinum Group Metal Isomerisation Catalysts

PHILLIPS PETROLEUM CO. U.S. Patent 3,250,819

In a two-stage process for the production of cycloparaffins the isomerisation catalyst used comprises a refractory metal oxide supporting 0.01–5 wt.% Pt group metal and 0.2–5 wt.% combined halogen.

Platinum Group Metal Hydrogenation Catalysts

INSTITUT FRANCAIS DU PETROLE, DES CARBURANTS ET LUBRIFIANTS French Patent 1,426,900

Isoprene is produced by reacting an aqueous acidic solution of HCHO with isobutene and the product formed by hydrogenating crude 4,4-dimethyl-1,3-dioxane in the presence of Pt or Pd and hydrocracking the resultant mixture.

Vinyl Acetate Production

FARBWERKE HOECHST A.G.
German Patent 1,216,290

The reaction of C₂H₄, CH₃COOH and O₂ is catalysed by a supported Group VIII metal especially elementary Pd, with a Mn co-catalyst.

Chemical Reaction Catalyst

JOHNSON, MATTHEY & CO. LTD.
Dutch Application 65.10941

An improved catalyst for isomerisation, hydrogenation, polymerisation, oxidation and other reactions consists of an active metal salt (e.g. Ru, Rh or other Pt metal salt) dissolved in a thermally stable, low volatility salt.

Catalyst Production

JOHNSON MATTHEY & CO. LTD.
Dutch Application 65.12694

A new catalyst is an intimate homogeneous mixture (not a simple physical mixture) of Ru and Pt oxides providing 90–20 wt.% Pt and 10–80 wt.% Ru.

FUEL CELLS

Fuel Cells

LEESONA CORP. *British Patent 1,028,325*
A fuel cell has at least one electrode made of an alloy of Pt with 15-60 wt.% Ir, or 15-60 wt.% Ru or 3-60 wt.% Ni.

Oxidation of Fuels

ROBERT BOSCH G.m.b.H. *British Patent 1,032,535*
Organic fuels are subjected to electrochemical oxidation by introducing them into a cell which has a porous fuel electrode provided with a coating of radioactive material and an oxygen electrode consisting of a Au lattice fitted with Raney Pt-Ir catalyst.

Improved Fuel Cell System

LEESONA CORP. *British Patent 1,033,361*
A fuel cell system comprises a unit for storage of gaseous or liquid fuels, a fuel cell unit comprising a non-porous Pd-Ag alloy H₂ diffusion anode, a bi-porous Co-activated NiO cathode, and means for supplying fuel and oxidant, a reactor unit for converting fuels into impure H₂ and by-products and means for feeding the impure H₂ stream from the reactor unit to the fuel cell unit. See also 1,033,362-5.

Metallised Sheet Electrodes

AMERICAN CYANAMID CO.
British Patent 1,036,513

A fuel cell electrode comprises 20-60% fibrous support, 1-23% H₂O-repellent compound and 25-65% metallic catalyst, preferably Pt, Pd or Ru.

Gold and Platinum Group Metal Fuel Cell Catalyst

ESSO RESEARCH AND ENGINEERING CO.
U.S. Patent 3,239,382

A fuel cell cathode has a supporting structure carrying as catalyst a major proportion of a Pt group metal, preferably Pt or Pd, and a minor amount of Au.

Platinum Impregnated Carbon Fuel Cell Electrode

PHILLIPS PETROLEUM CO. *U.S. Patent 3,244,564*
A fuel cell of improved construction, utilising an improved gelled electrolyte, has a circular C disc electrode impregnated with Pt.

Noble Metal Fuel Cell Electrode

ALLIS-CHALMERS MANUFACTURING CO.
U.S. Patent 3,250,646

A fuel cell electrode comprises a porous Ni plaque whose opposite spaced surfaces have a number of active centres of primary and secondary origin and monomolecular randomly distributed and distinct deposits of 10-20% Pt and the balance Pd, Ir, Rh, Os and/or Ru.

ELECTRICAL AND ELECTRONIC ENGINEERING

Magnetic Data Storage Devices

SPERRY RAND CORP. *British Patent 1,034,749*
A film of a ferromagnetic alloy is formed on a non-metallic substrate by treating the latter with adhesive material; applying a catalytic solution of a water-soluble compound of Pt, Pd, Ir or Au; treating this with an accelerating solution so as to reduce this compound to the elemental metal and then forming by electroless plating a film of a ferromagnetic Co-Fe-P alloy.

Ceramic Capacitor

SPRAGUE ELECTRIC CO. *U.S. Patent 3,243,315*
A ceramic capacitor is produced by applying a slurry of ceramic material having a dielectric constant greater than 200 in a vehicle which may be evaporated without leaving a residue, on a Pt group metal inner electrode, vitrifying the ceramic material and then forming a second electrode by applying the same or different Pt group metal.

Dispenser Type Thermionic Cathode

GENERAL ELECTRIC CO. *U.S. Patent 3,243,638*
A thermionic emitter comprises a porous matrix of compressed W, Ta, or Mo silicides, borides or carbides activated by Ba and containing a reducing agent and a tightly adherent porous Pt coating over which the Ba can diffuse.

Crystals for the Manufacture of Capacitors

WADDELL DYNAMICS INC. *U.S. Patent 3,247,019*
A capacitor is produced by applying on a conductive base a Ti-containing crystallisable material, allowing it to crystallise and repeating this process until an effective crystal layer is formed and then applying an outer electrode consisting of a Pt lamina sandwiched between two Au laminac.

Platinum Group Metal Electrical Resistors

INTERNATIONAL BUSINESS MACHINES CORP.
U.S. Patent 3,248,345

An electrical resistor composition which may be applied to and fired on a non-conducting ceramic base comprises (i) 30-65 wt.% finely divided borosilicate glass frit and (ii) 35-70 wt.% conductive material comprising 15-70 wt.% finely divided Pd or Rh oxide doped with up to 10 wt.% Sb, Cr, Li or Na and 0-35 wt.% finely divided Ag, Au or Pt acting as conductive element.

Ruthenium Alloys

INTERNATIONAL NICKEL LTD.
French Patent 1,426,691

New alloys particularly useful for the manufacture of electrical contacts comprise 60-80 wt.% Ru, 5-30 wt.% Au and 5-30 wt.% Pd and may also contain up to 10 wt.% total of Pt, Rh, Ir, Mo and/or W.