

High Temperature Black Body Radiation Source

H. P. BEERMAN, *Bull. Amer. Ceram. Soc.*, 1961, 40, (5), 308-309

A standard radiation source consists of 40% Rh-Pt wire wound on an Al_2O_3 core which has a conical cavity, blackened with a fired-on Pt paste.

A Pt:10% Rh-Pt thermocouple is embedded in the counterbore of the cone close to its apex. The core is insulated by bubble Al_2O_3 and diatomaceous earth. The operating range may be extended from 1650° to 1850°C by using a Rh winding, an Ir:40% Rh-Ir thermocouple, and different core and insulating materials.

NEW PATENTS

Hydrogenation of Nitrosamines

FOOD MACHINERY & CHEMICAL CORP. *British Patent* 868,147

An N, N - disubstituted hydrazine is prepared by reacting a dialkyl or substituted dialkyl nitrosamine or a heterocyclic nitrosamine with hydrogen in the presence of a palladium catalyst and an iron salt in the proportion of about 0.5 millimole of iron per g of catalyst. The catalyst consists of 5 parts palladium and 95 parts of active carbon.

Brazing of Beryllium

ASSOCIATED ELECTRICAL INDUSTRIES LTD. *British Patent* 869,607

Beryllium is brazed to a metal base by the use of palladium in the brazed joint. The palladium may be present in the brazing alloy, i.e. an alloy of silver, copper and palladium may be used or the palladium may be electrodeposited on the beryllium after the latter has been copper plated. Suitable for brazing a beryllium window to an X-ray tube.

Anode for Cathodic Protection

ENGELHARD INDUSTRIES INC. *British Patent* 870,086

An anode assembly for cathodically protecting pipes, the walls of which come into contact with an electrolyte, is formed of a flexible wire anode surrounding one end part of a rod of insulating material, an inner conductive wire being provided for connecting the anode wire to a positive potential. The anode may be in the form of a helix or a wire mesh sleeve of platinum or other platinum group metal.

Electrolytic Anodes

METAL & PIPELINE ENDURANCE LTD. *British Patent* 870,277

An anode, primarily for cathodic protection of steel structures, consists of a body of lead or lead alloy (10-16% silver-lead alloy) in intimate contact with a platinum group metal, part or all of which is on the outside of the lead body and exposed to the electrolyte in use. The platinum group metal is preferably in the form of a wire embedded in the lead.

Beryllium Brazing

ASSOCIATED ELECTRICAL INDUSTRIES LTD. *British Patent* 870,780

Beryllium is brazed to another metal by interposing between the parts a palladium-containing solder, heating the assembly to below the solidus of the solder but high enough to cause interdiffusion between the beryllium and the solder, and holding this temperature long enough to cause limited interdiffusion and then raising the temperature above the liquidus to effect brazing. Solder alloy preferably 55-70% Ag, 20-30% Cu and 10-20% Pd.

Electric Switch Contacts

DEUTSCHE GOLD-UND SILBER-SCHNEIDANSTALT *British Patent* 871,660

Electric switch contacts, e.g. circuit-breaker contacts in the weak current field, are formed of an alloy of 1-20% rhenium and remainder palladium. Up to 50% of the rhenium may be replaced by tungsten.

Electrochemical Diode Rectifiers

UNION CARBIDE CORP. *British Patent* 871,675

An electrochemical diode rectifier comprises a vessel containing an electrolyte (reversible redox system in solution) and in which are mounted a pair of platinum electrodes, one of which is substantially greater in active surface area than the other.

Purification of Nitrogen

ENGELHARD INDUSTRIES INC. *British Patent* 871,755

Nitrogen, containing oxides of nitrogen as impurities, is purified by adding hydrogen to the gas and contacting the mixture with palladium metal or other palladium-containing catalyst at reaction temperature (50°-700°F).

Hydrogenation of Acetylene

BADISCHE ANILIN- & SODA-FABRIK A.G. *British Patent* 871,804

Acetylene compounds are partially hydrogenated in the presence of a palladium catalyst which has

been treated with an aqueous or organic solution of a salt of a metal of group IIb and/or IIIb of the Periodic System.

Corrosion- and Oxidation-resistant Surfaces NORTON GRINDING WHEEL CO. LTD. *British Patent* 872,445

The corrosion and oxidation resistant properties of articles made of platinum or an alloy thereof, such as crucibles, furnace parts, feed nozzles, subjected to contact with high temperature molten material are increased by first flame-spraying thereon a coating of ceramic material and then a coating of platinum or an alloy thereof.

Electric Furnace Element

JOHNSON, MATTHEY & CO. LTD. *British Patent* 873,946

The electric furnace heater element claimed in Patent No. 849,507 is made in the form of a sheet or panel of a platinum group metal or alloy thereof, instead of in the form of a wire or strip.

Vitreous Enamel

E. I. DU PONT DE NEMOURS & CO. *British Patent* 874,157

A vitreous enamel composition for firing on to a ceramic dielectric to form a resistor is composed of 8–27% of finely divided palladium and 92–73% of enamel flux (30–95% Bi_2O_3 or PbO and 70–5% of glass frit).

Manufacture of Semi-crystalline Ceramic Bodies

CORNING GLASS WORKS *Belgian Patent* 586,153

A semi-crystalline ceramic body is made by heat treating a moulded glass formed from a molten batch of the type R_2O , BaO , SiO_2 ($\text{R}_2\text{O} = \text{Li}_2\text{O}$, Na_2O and K_2O), or of the type Li_2O , Al_2O_3 , SiO_2 , containing one or more platinum group metals in sufficient amount to produce 0.001–0.10% metal, at 580–650°C for a time varying from 8 h at about 580°C to about $\frac{1}{2}$ h at about 650°C.

Platinum Plating

SEL-REX CORP. *U.S. Patent* 2,984,604

Thick layers of stress-free platinum are obtained by electrolyzing a solution formed by dissolving platinum diamminodinitrite in an aqueous solution of sulphamic acid containing sufficient acid to dissolve the dinitrite and adding water to form a solution containing at least 6 g/l of platinum metal.

Rods for Electron Microscope Technique

METROPOLITAN-VICKERS ELECTRICAL CO. LTD. *U.S. Patent* 2,985,599

A carbonaceous electrode is formed of a compressed mixture of finely divided platinum and

carbon, the proportion of platinum to carbon being from 3:1 to 5:1 by wt.

Isomerisation of Paraffin Hydrocarbons

ESSO RESEARCH & ENGINEERING CO. *U.S. Patent* 2,985,699

Normal paraffin hydrocarbons of from 4 to 7 carbon atoms are converted to the corresponding branched chain isomers by contacting the hydrocarbons at 40°–120°F with a supported bifunctional catalyst formed of an aluminium halide (bromide or bromide-chloride mixture) and a support carrying 0.01–5 wt.% of platinum in the form of a sulphide compound.

Catalyst Preparation

THE ATLANTIC REFINING CO. *U.S. Patent* 2,989,488

A catalyst is made by impregnating an acidic metal oxide component with an aqueous solution of platinumous tetrammino-hydroxide, ageing for at least 3 h at 210°–212°F, drying and converting the platinum compound to the metal in an amount of 0.1–2.5% by wt. of the catalyst.

Catalyst

THE M. W. KELLOGG CO. *U.S. Patent* 2,989,489

A hydrocarbon conversion catalyst is made by combining water, an acyclic polyhydric alcohol in amount of 1–50% by wt. based on wt. of water, a carrier material, and a water soluble compound selected from a chloroacid and an ammine complex of platinum or palladium in sufficient amount to provide 0.01–20% by wt. of the metal in the catalyst, and heating the mixture to form the catalyst.

Alloy

THE INTERNATIONAL NICKEL CO. INC. *U.S. Patent* 2,992,099

An alloy is composed of 0.05–2% selenium and balance essentially rhodium.

Hydroforming of a Naphtha

UNION OIL CO. OF CALIFORNIA *U.S. Patent* 2,992,985

Gasoline is hydroformed by contacting it, mixed with 500–10,000 s.c.f. of hydrogen per barrel of feed, with a catalyst composed of an activated gel-type alumina carrier and a minor amount of rhodium at 700°–1000°F, a pressure of 0–2000 p.s.i.g. and a feed rate of 0.2–10 liquid vols. per vol. of catalyst per h.

Electrolytic Bath for Deposition of Iridium

N. V. IGNATOVA and B. I. VASSERMAN *U.S.S.R. Patent* 136,056

A high quality dark-grey deposit of iridium on metals, particularly copper, is obtained by use of a plating bath containing, per litre of distilled water, 6.1 g of ammonium chloroiridate, 14 g of ammonium fluoride, 23 ml of 98% sulphuric acid and 20 ml of 20% sodium hydroxide.