A Pt:10% Rh-Pt thermocouple is embedded in the counterbore of the cone close to its apex. The core is insulated by bubble Al₂O₃ 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 N₂N - 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.

**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).

**Electric Switch Contacts**
**DEUTSCHE GOLD-UND SILBER-SCHEIDEANSTALT 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.

**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 875,445
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 glass frit (30-95% Bi₂O₃ or PbO and 70-5% of enamel flux (30-95% Bi₂O₃ 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 R₂O, BaO, SiO₂ (R₂O=Li₂O, Na₂O and K₂O), or of the type Li₂O, Al₂O₃, SiO₂, 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 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 electrolysing a solution formed by dissolving platinum diaminodinitrite 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
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 0.01-20% by 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 platinoctetrammino-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 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
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 chloroiodate, 14 g of ammonium fluoride, 23 ml of 98% sulphuric acid and 20 ml of 20% sodium hydroxide.