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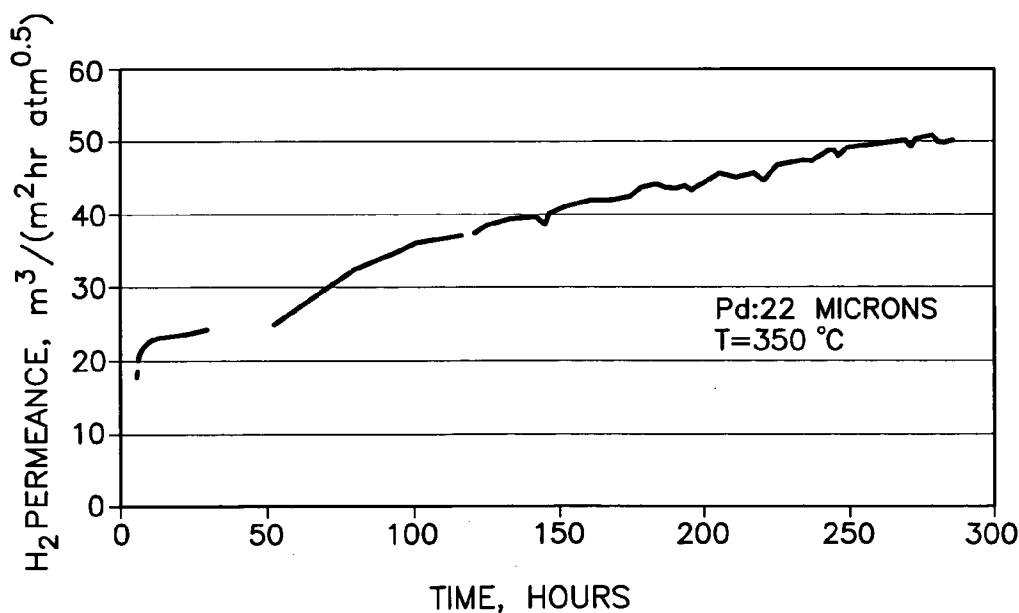
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Declaration under Rule 4.17:
— of inventorship (Rule 4.17(iv))

[Continued on next page]

(54) Title: PD MEMBRANE HAVING IMPROVED H₂-PERMEANCE, AND METHOD OF MAKING



(57) Abstract: An H₂-permeable membrane system (117) comprises an electroless-deposited plating (115) of Pd or Pd alloy on a porous support (110, 110'). The Pd plating comprises face-centered cubic crystals cumulatively having a morphology of hexagonal platelets. The permeability to H₂ of the membrane plating (115) on the porous support is significantly enhanced, being at least greater than about 1.3x10⁻⁸ mol.m⁻¹.s⁻¹.Pa^{-0.5} at 350 °C, and even greater than about 3.4x10⁻⁸ mol.m⁻¹.s⁻¹.Pa^{-0.5}. The porous support (110, 110') may be stainless steel (1100 and include a thin ceramic interlayer (110') on which the Pd is plated. The method of providing the electroless-deposited plating includes preheating a Pd electroless plating solution to near a plating temperature substantially greater than room temperature, e.g. 60 °C, prior to plating.

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A. CLASSIFICATION OF SUBJECT MATTER
 IPC: **B01D 53/22(2006.01),71/02(2006.01),69/12(2006.01)**

 USPC: 95/56;96/10,11;55/DIG.5;427/437,443.1
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B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)
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Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X --- Y	US 6,828,037 B2 (UEMURA et al) 7 December 2004 (07.12.2004), Figures 1-5 and column 4, line 45 to column 12, line 55.	1-4 and 6 ----- 5 and 7
X --- Y	US 5,989,319 A (KAWAE et al) 23 November 1999 (23.11.1999), Figures 1-3 and column 2, line 62 to column 8, line 43.	1-4 ----- 5, 7 and 8
Y --- A	US 6,152,987 A (MA et al) 28 November 2000 (28.11.2000), column 7, line 66 to column 8, line 35.	8 ----- 9
A	US 6,964,697 B2 (PAN et al) 15 November 2005 (15.11.2005), Figures 1 and 2 and column 1, line 61 to column 4, line 44.	1-9

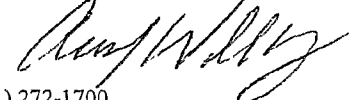
Further documents are listed in the continuation of Box C. See patent family annex.

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C. (Continuation) DOCUMENTS CONSIDERED TO BE RELEVANT

Category *	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	US 5,738,708 A (PEACHEY et al) 14 April 1998 (14.04.1998), column 2, line 25 to column 5, line 65.	1-9
A	US 5,789,027 A (WATKINS et al) 4 August 1998 (04.08.1998), column 1, line 51 to column 9, line 50.	9