



Europäisches Patentamt
European Patent Office
Office européen des brevets



(11) **EP 0 822 011 A3**

(12) **EUROPEAN PATENT APPLICATION**

(88) Date of publication A3:
12.05.1999 Bulletin 1999/19

(51) Int. Cl.⁶: **B05D 5/06, B44C 5/04**

(43) Date of publication A2:
04.02.1998 Bulletin 1998/06

(21) Application number: **97113357.4**

(22) Date of filing: **01.08.1997**

(84) Designated Contracting States:
**AT BE CH DE DK ES FI FR GB GR IE IT LI LU MC
NL PT SE**

(30) Priority: **02.08.1996 JP 204520/96**

(71) Applicant: **KANSAI PAINT CO. LTD.**
Amagasaki-shi Hyogo-ken (JP)

(72) Inventors:
• **Kuwano, Kazuyuki**
Toyota-shi, Aichi-ken (JP)
• **Abe, Daisuke**
Toyota-shi, Aichi-ken (JP)

• **Sugiura, Mamoru**
Toyota-shi, Aichi-ken (JP)
• **Horibe, Kyoichi**
Amagasaki-shi, Hyogo-ken (JP)
• **Hayashi, Yukiko**
Amagasaki-shi, Hyogo-ken (JP)

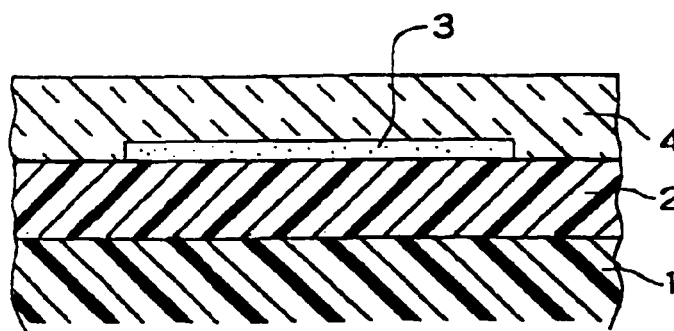
(74) Representative:
Bühling, Gerhard, Dipl.-Chem. et al
Patentanwaltsbüro
Tiedtke-Bühling-Kinne & Partner
Bavariaring 4
80336 München (DE)

(54) **Process for forming decorative paint film exhibiting metallic effect**

(57) A decorative paint film forming process includes the steps of applying a base paint, including a glossy substance, to form a base paint film, and applying a decorative paint on a surface of the base paint film to form a decorative layer having a thickness of less than a hiding thickness. Alternatively, a clear paint can

be applied on the base paint film to form a clear paint film, and the decorative layer can be formed on the clear paint film. The resulting decorative paint film involves a noble decoration in which a metallic effect is superimposed on the hues of the decorative layer.

FIG. 1



EP 0 822 011 A3



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 11 3357

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
X	EP 0 388 931 A (BASF CORP) 26 September 1990	1-13	B05D5/06 B44C5/04
A	* page 2, line 39 - page 3, line 40 * * page 4, line 45 - page 7, line 47 * * page 9, line 55 - page 11, line 6 * * claims 1-14 * * figures 1,2 *	14-18	
D,A	--- PATENT ABSTRACTS OF JAPAN vol. 095, no. 007, 31 August 1995 & JP 07 108216 A (TOYOTA AUTO BODY CO LTD), 25 April 1995 * abstract *	1,12,18	
A	--- EP 0 388 932 A (BASF CORP) 26 September 1990 * claims 1-14 * * page 3, line 18 - line 50 * * page 6, line 38 - page 8, line 33 * * page 15, line 43 - page 16, line 52 * * figures 1,2 *	1-18	
A	--- EP 0 402 181 A (NISSAN MOTOR) 12 December 1990 * claims 1,10 * * page 2, line 40 - page 4, line 56 * * tables 1-3 * * figure 1 *	1-18	
A	--- EP 0 401 766 A (BASF CORP) 12 December 1990 * page 3, line 36 - page 7, line 14 * * claims 1-14 *	1-18	TECHNICAL FIELDS SEARCHED (Int.Cl.6) B05D B44C
The present search report has been drawn up for all claims			
Place of search		Date of completion of the search	Examiner
THE HAGUE		19 March 1999	Vlassi, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03.82 (P04C01)



European Patent
Office

EUROPEAN SEARCH REPORT

Application Number
EP 97 11 3357

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	CLASSIFICATION OF THE APPLICATION (Int.Cl.6)
A	GB 2 257 929 A (TUDOR HART GEORGE HENRY) 27 January 1993 * claims 1-16 * * page 2, paragraph 1 - page 3, paragraph 6 *	1,12, 16-18	
A	US 4 598 015 A (PANUSH SOL) 1 July 1986 * claims 1-7 * * column 2, line 33 - column 7, line 62 * * column 9, line 3 - line 58 *	1,12, 14-18	
A	US 4 551 491 A (PANUSH SOL) 5 November 1985 * claims 1-4 * * example 1 * * column 2, line 51 - column 8, line 29 *	1,2, 12-18	
A	EP 0 389 966 A (SUMITOMO ELECTRIC INDUSTRIES) 3 October 1990 * page 4, line 48 - page 9, line 11 * * example 1 *	1,2,18	
A	EP 0 238 037 A (NIPPON PAINT CO LTD) 23 September 1987 * claim 1 * * page 3, line 3 - line 29 * * page 4, line 30 - page 6, line 39 * * page 9, line 35 - line 54 * * page 11-13; examples 1-5 *	1-3, 12-18	
The present search report has been drawn up for all claims			TECHNICAL FIELDS SEARCHED (Int.Cl.6)
Place of search THE HAGUE		Date of completion of the search 19 March 1999	Examiner Vlassi, E
CATEGORY OF CITED DOCUMENTS X : particularly relevant if taken alone Y : particularly relevant if combined with another document of the same category A : technological background O : non-written disclosure P : intermediate document T : theory or principle underlying the invention E : earlier patent document, but published on, or after the filing date D : document cited in the application L : document cited for other reasons & : member of the same patent family, corresponding document			

EPO FORM 1503 03 82 (P04C01)

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 11 3357

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report. The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0388931 A	26-09-1990	AU 5138090 A	27-09-1990
		CA 2012689 A	22-09-1990
		JP 3028276 A	06-02-1991
EP 0388932 A	26-09-1990	AU 5137890 A	27-09-1990
		CA 2010818 A	22-09-1990
		JP 3028275 A	06-02-1991
EP 0402181 A	12-12-1990	JP 3012263 A	21-01-1991
		US 5108796 A	28-04-1992
EP 0401766 A	12-12-1990	US 4971841 A	20-11-1990
		AU 641396 B	23-09-1993
		AU 5626290 A	13-12-1990
		CA 2018490 A	08-12-1990
		DE 69011220 D	08-09-1994
		DE 69011220 T	26-01-1995
		ES 2060868 T	01-12-1994
		JP 3095275 A	19-04-1991
		MX 166254 B	24-12-1992
		PH 26957 A	28-12-1992
GB 2257929 A	27-01-1993	NONE	
US 4598015 A	01-07-1986	AU 576716 B	01-09-1988
		AU 4834085 A	19-06-1986
		BR 8504848 A	22-07-1986
		CA 1255979 A	20-06-1989
		DE 3586488 A	17-09-1992
		EP 0186607 A	02-07-1986
		JP 1662196 C	19-05-1992
		JP 3023108 B	28-03-1991
		JP 61138676 A	26-06-1986
US 4551491 A	05-11-1985	AU 561757 B	14-05-1987
		AU 2205783 A	04-06-1984
		BR 8307592 A	25-09-1984
		CA 1250070 A	14-02-1989
		DE 3375981 A	21-04-1988
		EP 0124583 A	14-11-1984
		WO 8401909 A	24-05-1984
EP 0389966 A	03-10-1990	JP 1885276 C	10-11-1994
		JP 2251440 A	09-10-1990
		JP 6009909 B	09-02-1994
		JP 2567481 B	25-12-1996

EPO FORM P0459

For more details about this annex : see Official Journal of the European Patent Office, No. 12/82

**ANNEX TO THE EUROPEAN SEARCH REPORT
ON EUROPEAN PATENT APPLICATION NO.**

EP 97 11 3357

This annex lists the patent family members relating to the patent documents cited in the above-mentioned European search report.
The members are as contained in the European Patent Office EDP file on
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

19-03-1999

Patent document cited in search report	Publication date	Patent family member(s)	Publication date
EP 0389966 A		JP 3159623 A	09-07-1991
		CN 1046121 A,B	17-10-1990
		DE 69011369 D	15-09-1994
		DE 69011369 T	15-12-1994
		US 5106682 A	21-04-1992
EP 0238037 A	23-09-1987	JP 1912684 C	09-03-1995
		JP 4071592 B	16-11-1992
		JP 62216671 A	24-09-1987
		AU 588438 B	14-09-1989
		AU 7008487 A	24-09-1987
		CA 1302179 A	02-06-1992
		DE 3781915 A	05-11-1992
		US 4820555 A	11-04-1989