

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Classification of the application (IPC): C22C 37/04, C22C 37/10, C22C 33/10, C22C 33/08, C21D 5/02, C21D 1/32, C21D 1/26, C21C 1/10, C22C 28/00

Technical fields searched (IPC): C22C, C21D, C21C

DOCUMENTS CONSIDERED TO BE RELEVANT			
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
Х	JP S5921379 B2 (HITACHI METALS LTD) 19 May 1984 (1984-05-19) * the whole document *	1-5	
A	US 5346561 A (OBATA FUMIO [JP] ET AL) 13 September 1994 (1994-09-13) * claims 1-7 * * tables 1-4 * * columns 1-11 *	1-5	
A	US 2014352851 A1 (WANG LIN [JP] ET AL) 04 December 2014 (2014-12-04) * claims 1-5 * * paragraphs [0006] - [0074] * * tables 1-2 *	1-5	
A	US 5876523 A (NAGAYOSHI HIDEAKI [JP] ET AL) 02 March 1999 (1999-03-02) * claims 1-8 * * table 1 * * columns 2-12 *	1-5	
A	JP H0813079 A (MAZDA MOTOR) 16 January 1996 (1996-01-16) * the whole document *	1-5	
A	US 2016160325 A1 (MITO KAZUSHIGE [JP] ET AL) 09 June 2016 (2016-06-09) * paragraphs [0006] - [0063] * * claims 1, 4, 6, 15 * * tables 1-2 *	1-5	

The supplementary search report has been based on the last set of claims valid and

available at the start of the search.					
Place of search	Date of completion of the search	Examiner			
The Hague	20 November 2023	Vlassi, Eleni			
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DOCUMENTS CONSIDERED TO BE RELEVANT				
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim		
A	US 2014251751 A1 (PARK JAEBONG [KR]) 11 September 2014 (2014-09-11) * claims 1-9 * * paragraphs [0009] - [0065] *	1-5		
A	US 2014271330 A1 (HORIYA TAKAO [JP] ET AL) 18 September 2014 (2014-09-18) * claims 1-4 * * tables 1-2 * * paragraphs [0013] - [0143] *	1-5		

The supplementary search report has been based on the last set of claims valid and available at the start of the search.

Place of search The Hague	Date of completion of the search 20 November 2023	_{Examiner} Vlassi, Eleni		
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Application number: EP 20 80 29 57

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Patent document cited in search report		Publication date	Patent family member(s)		Publication date	
JP	S5921379	B2	19-05-1984	JP JP	S5386618 A S5921379 B2	31-07-1978 19-05-1984
US	5346561	A	13-09-1994	NONE		
US	2014352851	A1	04-12-2014	CN EP JP JP KR US WO	104024450 A 2799565 A1 6079641 B2 WO2013100148 A1 20140107351 A 2014352851 A1 2013100148 A1	03-09-2014 05-11-2014 15-02-2017 11-05-2015 04-09-2014 04-12-2014 04-07-2013
US	5876523	A	02-03-1999	JP JP US	3204293 B2 H09296215 A 5876523 A	04-09-2001 18-11-1997 02-03-1999
JP	H0813079	A	16-01-1996	NONE		
US	2016160325	A1	09-06-2016	CN EP JP JP KR US WO	105283571 A 3015560 A1 5655115 B1 2015010255 A 20160025518 A 2016160325 A1 2014208240 A1	27-01-2016 04-05-2016 14-01-2015 19-01-2015 08-03-2016 09-06-2016 31-12-2014
US	2014251751	A1	11-09-2014	CN KR US	104032210 A 20140110618 A 2014251751 A1	10-09-2014 17-09-2014 11-09-2014
US	2014271330	A1	18-09-2014	CN EP JP JP US WO	103857807 A 2765207 A1 5839461 B2 2013082966 A 2014271330 A1 2013051698 A1	11-06-2014 13-08-2014 06-01-2016 09-05-2013 18-09-2014 11-04-2013

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