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SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:
EP 19 84 79 97

Classification of the application (IPC):
C23C 2/12*, *C22C 38/02*, *C22C 38/04*, *C22C 38/06*, *C22C 38/28*, *C22C 38/32*, *C21D 1/18*, *C21D 1/673*, *C21D 1/76*, *C21D 6/00*, *C21D 7/13*, *C21D 9/48*, *C22C 38/38*, *C23C 2/28*, *C23C 28/02*, *B21D 22/02

Technical fields searched (IPC):
C21D, C22C, C23C

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X Y	**SINGH JHAJJ KAMALPREET**: "Heat Transfer Modeling of Roller Hearth and Muffle Furnace" *THESIS UNIVERSITY OF WATERLOO*, 01 January 2015 (2015-01-01), pages 1-53 URL: https://core.ac.uk/download/pdf/144148558.pdf , XP055808280 * page 1 - page 14 * * tables 1-4 * * figures 2, 8 *	1-4, 7-12 3, 5, 6, 8
X Y	US 2011056594 A1 (MACHEREY FRIEDHELM [DE] ET AL) 10 March 2011 (2011-03-10) * paragraph [0015] - paragraph [0041] * * claims 1-13 * * figure 1 *	1, 2, 4, 7, 9-12 3, 8
Y	**N/a**: "Advancements in furnace design improve hot stamping" *Stamping Journal*, 28 February 2017 (2017-02-28), pages 1-7 URL: https://www.thefabricator.com/stampingjournal/article/stamping/advancements-in-furnace-design-improve-hot-stamping [retrieved on 25 January 2022 (2022-01-25)] XP055883524 * page 23, column 1 *	5
Y	CN 106466697 A (BAOSHAN IRON & STEEL) 01 March 2017 (2017-03-01) * claim 1 *	6
A	**N/a**: "ASTM standard A 463/A463 M", 10 August 2016 (2016-08-10), pages 1-7 URL: https://www.astm.org/a0463_a0463m-15r20e01.html [retrieved on 25 January 2022 (2022-01-25)] XP055883519 * table X2.1 *	1-12

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	25 January 2022	Neibecker, Pascal

CATEGORY OF CITED DOCUMENTS

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Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
A	**N/a**: "Stress-Strain Curves - Usibor 1500 treated", 31 December 2016 (2016-12-31), pages 1-5 URL: https://automotive.arcelormittal.com/files/Usibor1500--3a82a9aa69487763bbbba1a960151cc0.pdf [retrieved on 25 January 2022 (2022-01-25)] XP055883494 * page 1 *	1-12
X	EP 3070187 A1 (NIPPON STEEL & SUMITOMO METAL CORP [JP]) 21 September 2016 (2016-09-21) * paragraph [0073] - paragraph [0082] * * tables 1-3 * * claims 1-20 *	11, 12

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

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Patent document cited in search report	Publication date	Patent family member(s)	Publication date
US 2011056594 A1	10-03-2011	AT 520798 T	15-09-2011
		CA 2713381 A1	06-08-2009
		CN 101932747 A	29-12-2010
		DE 102008006771 B3	10-09-2009
		EP 2240622 A1	20-10-2010
		ES 2368820 T3	22-11-2011
		JP 5666313 B2	12-02-2015
		JP 2011514440 A	06-05-2011
		KR 20100108608 A	07-10-2010
		PL 2240622 T3	31-01-2012
		PT 2240622 E	30-09-2011
		US 2011056594 A1	10-03-2011
		WO 2009095427 A1	06-08-2009
CN 106466697 A	01-03-2017	*NONE*	
EP 3070187 A1	21-09-2016	CA 2933039 A1	02-07-2015
		CN 105829578 A	03-08-2016
		EP 3070187 A1	21-09-2016
		ES 2762572 T3	25-05-2020
		JP 6376140 B2	22-08-2018
		JP WO2015098653 A1	23-03-2017
		KR 20160095078 A	10-08-2016
		PL 3070187 T3	31-03-2020
		RU 2016128897 A	30-01-2018
		TW 201529894 A	01-08-2015
		US 2016318093 A1	03-11-2016
		US 2019160519 A1	30-05-2019
		WO 2015098653 A1	02-07-2015
		ZA 201603964 B	18-12-2019

EP 3 770 295 A4

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