



Europäisches
Patentamt
European
Patent Office
Office européen
des brevets

SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:
EP 22 84 90 77

Classification of the application (IPC):

C21D 1/22, C21D 8/02, C21D 9/46, C22C 38/00, C22C 38/02, C22C 38/04,
C22C 38/06, C22C 38/08, C22C 38/12, C22C 38/14, C22C 38/20, C22C 38/26,
C22C 38/28, C22C 38/32, C22C 38/38, C22C 38/60, C25D 7/06

Technical fields searched (IPC):

C21D, C22C

DOCUMENTS CONSIDERED TO BE RELEVANT

Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim
X A	WO 2020170667 A1 (JFE STEEL CORP [JP]) 27 August 2020 (2020-08-27) * abstract; claims 1-8; table 1 * & EP 3929321 A1 (JFE STEEL CORP [JP]) 29 December 2021 (2021-12-29) * abstract; claims 1-8; table 1 *	7 1-6, 8-10
X A	EP 3486346 A1 (JFE STEEL CORP [JP]) 22 May 2019 (2019-05-22) * abstract; claims 1-9; table 1 *	7 1-6, 8-10
X A	US 2012009434 A1 (HATA HIDEO [JP] ET AL) 12 January 2012 (2012-01-12) * abstract; claims 1-8; table 1 *	7 1-6, 8-10

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 30 August 2024	Examiner Mikloweit, Alexander
------------------------------	--	----------------------------------

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
& : member of the same patent family, corresponding document

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

Disclaimer: this document has been automatically generated using data structured in accordance with WIPO standard ST.36 from the database of search reports of the European Patent Office. For technical reasons, its content and layout may differ from that of the original publication. Only the original published information is legally binding.



ANNEX TO SUPPLEMENTARY EUROPEAN SEARCH REPORT

Application number:
EP 22 84 90 77

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 30-08-2024.
The European Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent document cited in search report		Publication date		Patent family member(s)	Publication date
WO 2020170667	A1	27-08-2020	CN	113490758 A	08-10-2021
			EP	3929321 A1	29-12-2021
			JP	6841382 B2	10-03-2021
			JP	WO2020170667 A1	11-03-2021
			KR	20210120089 A	06-10-2021
			US	2022186339 A1	16-06-2022
			US	2022186339 A1	16-06-2022
			WO	2020170667 A1	27-08-2020
EP 3929321	A1	29-12-2021	CN	113490758 A	08-10-2021
			EP	3929321 A1	29-12-2021
			JP	6841382 B2	10-03-2021
			JP	WO2020170667 A1	11-03-2021
			KR	20210120089 A	06-10-2021
			US	2022186339 A1	16-06-2022
			US	2022186339 A1	16-06-2022
			WO	2020170667 A1	27-08-2020
EP 3486346	A1	22-05-2019	CN	109642295 A	16-04-2019
			EP	3486346 A1	22-05-2019
			JP	6388085 B2	12-09-2018
			JP	WO2018062381 A1	27-09-2018
			KR	20190034265 A	01-04-2019
			US	2019203317 A1	04-07-2019
			US	2019203317 A1	04-07-2019
			WO	2018062381 A1	05-04-2018
US 2012009434	A1	12-01-2012	CN	102348823 A	08-02-2012
			JP	4712882 B2	29-06-2011
			JP	2010037652 A	18-02-2010
			JP	2010037652 A	18-02-2010
			US	2012009434 A1	12-01-2012