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(54) **Improved steel composition**

(57) The invention relates to a steel composition which is substantially free of nickel and which can be used for medical implants and/or jewellery manufacture. Some humans experience severe allergic reactions to Nickel and therefore there has been a desire for some time to provide a Nickel free steel. Nickel is an important constituent of surgical grade steel because it is a good austenite promoter, and steel thus formed has good strength properties and has paramagnetic characteristics which are essential for such steels. The absence of Nickel results in the formation of ferritic steel which is ferromagnetic, which cannot be used for medical implants. The invention results from the realisation that Nitrogen is a good promoter of austenitic steel structures, and although Nitrogen is a gas and thus generally insoluble in molten steel, a careful balance of additional alloying elements such as Manganese, Chromium, and Molybdenum, with Iron can result in a molten alloy in which Nitrogen can be dissolved at atmospheric pressure to a degree at which its austenitic steel structure promotion effects are readily appreciable.

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PARTIAL EUROPEAN SEARCH REPORT

Application Number

which under Rule 45 of the European Patent Convention EP 00 10 7561 shall be considered, for the purposes of subsequent proceedings, as the European search report

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.7)
X	PATENT ABSTRACTS OF JAPAN vol. 1998, no. 10, 31 August 1998 (1998-08-31) -& JP 10 121203 A (DAIDO STEEL CO LTD), 12 May 1998 (1998-05-12) * abstract * * paragraph [0018]; examples 1-3,5,6,8 *	1-6	C22C38/38
X	DE 42 42 757 C (KRUPP VDM GMBH) 24 March 1994 (1994-03-24) * claim 1; table 1 *	1	
X	GB 778 597 A (FORD) 10 July 1957 (1957-07-10) * page 1, line 70 - line 80; example 49 *	1	
X	FR 2 493 344 A (GEN ELECTRIC) 7 May 1982 (1982-05-07) * claim 1; examples 8,10-12 *	1	
-/--			TECHNICAL FIELDS SEARCHED (Int.Cl.7)
			C22C
INCOMPLETE SEARCH			
The Search Division considers that the present application, or one or more of its claims, does/do not comply with the EPC to such an extent that a meaningful search into the state of the art cannot be carried out, or can only be carried out partially, for these claims. Claims searched completely : Claims searched incompletely : Claims not searched : Reason for the limitation of the search: see sheet C			
Place of search		Date of completion of the search	Examiner
MUNICH		9 March 2001	Alvazzi Delfrate, M
CATEGORY OF CITED DOCUMENTS		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	
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			

EPO FORM 1503 03.02 (P04C07)

PARTIAL EUROPEAN SEARCH REPORT

Application Number
EP 00 10 7561

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (Int.Cl.7)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	PATENT ABSTRACTS OF JAPAN vol. 011, no. 085 (C-410), 14 March 1987 (1987-03-14) -& JP 61 238943 A (KOBE STEEL LTD), 24 October 1986 (1986-10-24) * abstract; example 4 * ---	1	
A	MENZEL ET AL: "High nitrogen containing Ni-free austenitic steels for medical applications" ISIJ INTERNATIONAL, JP, TOKYO, vol. 7, no. 36, 1996, pages 893-900, XP002074520 -----		TECHNICAL FIELDS SEARCHED (Int.Cl.7)



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INCOMPLETE SEARCH
SHEET C

Application Number
EP 00 10 7561

Claim(s) searched completely:
1-6

Claim(s) not searched:
7

Reason for the limitation of the search:

Present claim 7 attempts to define the features of the claimed steel by referring to the drawings. It is unclear which features are implied by said definition. Therefore, a lack of clarity within the meaning of Article 84 EPC arises to such an extent as to render a meaningful search of claim 7 impossible.

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

EP 00 10 7561

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
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09-03-2001

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