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Declaration under Rule 4.17:

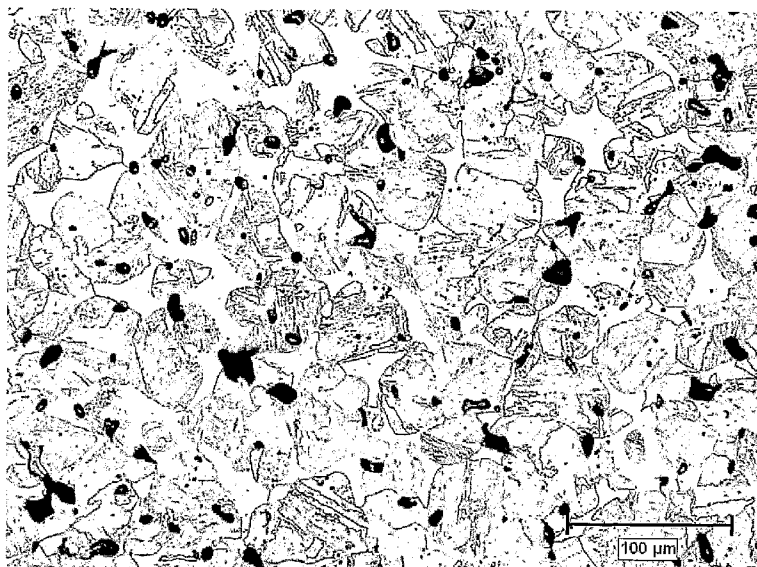
— as to the applicant's entitlement to claim the priority of the earlier application (Rule 4.17(iii))

Published:

— with international search report

[Continued on next page]

(54) Title: CORROSION RESISTANT METALLURGICAL POWDER COMPOSITIONS, METHODS, AND COMPACTED ARTICLES



(57) Abstract: Provided are corrosion resistant metallurgical powder compositions, corrosion resistant compacted articles prepared from metallurgical powder compositions, and methods of preparing the same. Corrosion resistant metallurgical powder compositions include as a major component, an iron-based powder and, as a minor component, alloy additives that include chromium, and carbon. Upon compaction and sintering, the iron-based powder and alloy additives form a dual phase alloy system. The dual phase alloy system is denoted by an admixed martensite and ferrite microstructure. This unique microstructure results in beneficial physical properties, such as for example, high strength, hardness, and ductility, impact energy, and fatigue endurance, while maintaining resistance to corrosion.

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For two-letter codes and other abbreviations, refer to the "Guidance Notes on Codes and Abbreviations" appearing at the beginning of each regular issue of the PCT Gazette.

INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/18156

A. CLASSIFICATION OF SUBJECT MATTER

IPC(8): B22F 3/12; C22C 33/02; C22C 38/18 (2007.01)

USPC: 75/243, 246, 255

According to International Patent Classification (IPC) or to both national classification and IPC

B. FIELDS SEARCHED

Minimum documentation searched (classification system followed by classification symbols)

IPC(8): B22F 3/12; C22C 33/02; C22C 38/18 (2007.01)

USPC: 75/243, 246, 255

Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched

Electronic data base consulted during the international search (name of data base and, where practicable, search terms used)

PubWEST(USPT,PGPB,EPAB,JPAB); DialogPRO(Engineering); Google Patents; PAIR

Search Terms Used:

Iron powder, corrosion resistant, dual phase microstructure, sintering, ferrite factor, water atomization

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
Y	US 2003/0136224 A1 (SANGER et al.) 24 July 2003 (24.07.2003). entire document, esp. para [0010]	1-30
Y	US 3,176,354 A (REEN et al.) 13 February 1973 (13.02.1973), entire document	1-30
Y	US 6,866,816 B2 (LIANG et al.) 15 March 2005 (15.03.05), Abstract	2, 3, 6, 7, 9, 16 and 24-30
Y	US 5,653,826 A (KOO et al.) 5 August 1997 (05.08.1997), Abstract, col. 1, ln 43-45	12-14, 20 and 22-30
Y	US 4,765,836 A (HAUSER et al.) 23 August 1988 (23.08.1988), Abstract	8-14
Y	US 2, 719,095 A (SCANLAN) 27 September 1955 (27.09.1955), entire document, esp. col. 2, ln. 30-42.	15-23

 Further documents are listed in the continuation of Box C.

* Special categories of cited documents:

"A" document defining the general state of the art which is not considered to be of particular relevance

"E" earlier application or patent but published on or after the international filing date

"L" document which may throw doubts on priority claim(s) or which is cited to establish the publication date of another citation or other special reason (as specified)

"O" document referring to an oral disclosure, use, exhibition or other means

"P" document published prior to the international filing date but later than the priority date claimed

"T" later document published after the international filing date or priority date and not in conflict with the application but cited to understand the principle or theory underlying the invention

"X" document of particular relevance; the claimed invention cannot be considered novel or cannot be considered to involve an inventive step when the document is taken alone

"Y" document of particular relevance; the claimed invention cannot be considered to involve an inventive step when the document is combined with one or more other such documents, such combination being obvious to a person skilled in the art

"&" document member of the same patent family

Date of the actual completion of the international search

02 August 2007 (02.08.2007)

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INTERNATIONAL SEARCH REPORT

International application No.

PCT/US 06/18156

Box No. II Observations where certain claims were found unsearchable (Continuation of item 2 of first sheet)

This international search report has not been established in respect of certain claims under Article 17(2)(a) for the following reasons:

1. Claims Nos.:
because they relate to subject matter not required to be searched by this Authority, namely:

2. Claims Nos.:
because they relate to parts of the international application that do not comply with the prescribed requirements to such an extent that no meaningful international search can be carried out, specifically:

3. Claims Nos.:
because they are dependent claims and are not drafted in accordance with the second and third sentences of Rule 6.4(a).

Box No. III Observations where unity of invention is lacking (Continuation of item 3 of first sheet)

This International Searching Authority found multiple inventions in this international application, as follows:

Group I: claims 1-14 and 24-30

Group II: claims 15-23

1. As all required additional search fees were timely paid by the applicant, this international search report covers all searchable claims.
2. As all searchable claims could be searched without effort justifying additional fees, this Authority did not invite payment of additional fees.
3. As only some of the required additional search fees were timely paid by the applicant, this international search report covers only those claims for which fees were paid, specifically claims Nos.:

4. No required additional search fees were timely paid by the applicant. Consequently, this international search report is restricted to the invention first mentioned in the claims; it is covered by claims Nos.:

Remark on Protest

- The additional search fees were accompanied by the applicant's protest and, where applicable, the payment of a protest fee.
- The additional search fees were accompanied by the applicant's protest but the applicable protest fee was not paid within the time limit specified in the invitation.
- No protest accompanied the payment of additional search fees.