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B64C 1/12 (2006.01) *B32B 5/16* (2006.01)
B23P 6/04 (2006.01) *B32B 15/02* (2006.01)
B22F 7/04 (2006.01) *C23C 24/04* (2006.01)
B22F 7/08 (2006.01) *F16B 5/04* (2006.01)
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(71) Applicant: **ROSEBANK ENGINEERING PTY LTD**
[AU/AU]; 836 Mountain Highway, Bayswater, Victoria
3153 (AU).

(72) Inventors: **MATTHEWS, Neil**; 5 Maskells Hill Road,
Selby, Victoria 3159 (AU). **JONES, Rhys**; 2 Wicking
Court, Blackburn South, Victoria 3130 (AU).

(74) Agent: **BOROVEC, Steven**; Churchill Attorneys, Suite
302, 89 High Street, Kew, Victoria 3101 (AU).

(81) Designated States (unless otherwise indicated, for every
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AO, AT, AU, AZ, BA, BB, BG, BH, BN, BR, BW, BY,
BZ, CA, CH, CL, CN, CO, CR, CU, CZ, DE, DK, DM,
DO, DZ, EC, EE, EG, ES, FI, GB, GD, GE, GH, GM, GT,
HN, HR, HU, ID, IL, IN, IS, JP, KE, KG, KM, KN, KP,
KR, KZ, LA, LC, LK, LR, LS, LT, LU, LY, MA, MD,
ME, MG, MK, MN, MW, MX, MY, MZ, NA, NG, NI,
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RW, SC, SD, SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ,
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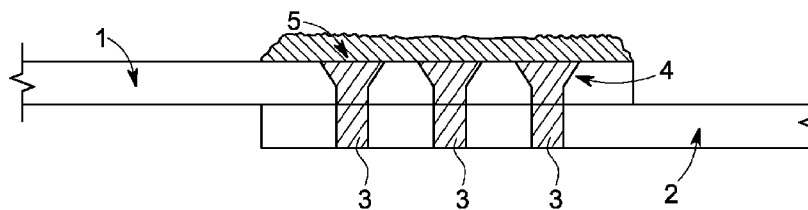


FIG. 23A

(57) Abstract: The present invention relates to methods for repairing a structural weakness in an aircraft fuselage, or preventing the advancement of a structural weakness in an aircraft fuselage. Cold spray methods such as supersonic particle deposition have been shown to positively affect structural characteristics of sheet metal and lap joints as used in fuselage construction.



INTERNATIONAL SEARCH REPORT

International application No.

PCT/AU2013/000309

A. CLASSIFICATION OF SUBJECT MATTER		
B64F 5/00 (2006.01) B64C 1/12 (2006.01) B23P 6/04 (2006.01) B22F 7/04 (2006.01) B22F 7/08 (2006.01) B05D 1/12 (2006.01) B05D 7/14 (2006.01) B32B 5/16 (2006.01) B32B 15/02 (2006.01) C23C 24/04 (2006.01) F16B 5/04 (2006.01)		
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)		
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)		
EPODOC, WPI using IPC/EC marks (B64C1/12; B64F5/-; B23P6/04; C23C24/04, 4/08; F16B5/04, 19/04; B22F7/-; B05D1/06, 1/10, 1/12, 7/14; B32B37/24, 5/16, 15/02) and keywords (aircraft, seal, proof, environment, ingress, deter, corrode, powder, particle, spray, blast, deposit, crack, fracture, wear, worn, defect, damage, repair, salvage, mend, reclaim, cold spray, spd, particle deposition, metal, rivet, clad, joint, seam, lap, coat, cover, layer, and similar terms).		
C. DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
	Documents are listed in the continuation of Box C	
<input checked="" type="checkbox"/> Further documents are listed in the continuation of Box C <input checked="" type="checkbox"/> See patent family annex		
* Special categories of cited documents:		
"A" document defining the general state of the art which is not considered to be of particular relevance	"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	
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"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)	"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	
"O" document referring to an oral disclosure, use, exhibition or other means	"&" document member of the same patent family	
"P" document published prior to the international filing date but later than the priority date claimed		
Date of the actual completion of the international search 23 May 2013	Date of mailing of the international search report 23 May 2013	
Name and mailing address of the ISA/AU AUSTRALIAN PATENT OFFICE PO BOX 200, WODEN ACT 2606, AUSTRALIA Email address: pct@ipaaustralia.gov.au Facsimile No.: +61 2 6283 7999	Authorised officer Stuart Ash AUSTRALIAN PATENT OFFICE (ISO 9001 Quality Certified Service) Telephone No. 0399359633	

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.: **25-26**
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:
See Supplemental Box

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:

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.

INTERNATIONAL SEARCH REPORT		International application No.
C (Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		PCT/AU2013/000309
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 2009/0130327 A1 (ERDMANM et al.) 21 May 2009 See paragraphs [0002], [0010], [0027], [0029], [0031], [0035] to [0036], [0043] and [0045]; and, claim 1.	1, 3-8, 10, 13-14, 16-19, 21, 24
X	US 2008/0047222 A1 (BARNES) 28 February 2008 See paragraphs [0002] and [0035].	1, 3-6, 8-9, 11, 13-14, 16, 19-20, 22, 24

Supplemental Box

Continuation of **Box II**

Claims 25 and 26 do not comply with Rule 6.2(a) because they rely on references to the description and/or drawings.

INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/AU2013/000309

This Annex lists known patent family members relating to the patent documents cited in the above-mentioned international search report. The Australian Patent Office is in no way liable for these particulars which are merely given for the purpose of information.

Patent Document/s Cited in Search Report		Patent Family Member/s	
Publication Number	Publication Date	Publication Number	Publication Date
US 2009/0130327 A1	21 May 2009	BR PI0621684 A2	20 Dec 2011
		CA 2649208 A1	06 Dec 2007
		CN 101448976 A	03 Jun 2009
		CN 101448976 B	30 Mar 2011
		EP 2027305 A1	25 Feb 2009
		EP 2027305 B1	05 May 2010
		JP 2009538390 A	05 Nov 2009
		RU 2008151518 A	10 Jul 2010
		US 2009130327 A1	21 May 2009
		WO 2007137599 A1	06 Dec 2007
US 2008/0047222 A1	28 Feb 2008	US 2008047222 A1	28 Feb 2008

End of Annex

Due to data integration issues this family listing may not include 10 digit Australian applications filed since May 2001.

Form PCT/ISA/210 (Family Annex)(July 2009)