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(71) Applicant: **United Technologies Corporation**  
**Hartford, CT 06101 (US)**

(72) Inventors:

- **Bogue, William**  
**Hebron, CT 06248 (US)**

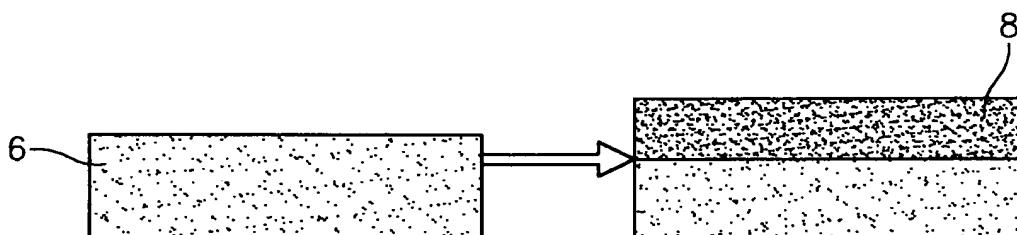
- **Lomasney, Gary M.**  
**Glastonbury, CT 06033 (US)**
- **Derosa, Robert J.**  
**Tolland, CT 06084 (US)**
- **Bunting, Billie W.**  
**Colchester, CT 06415 (US)**
- **Parkos, Joseph**  
**East Haddam CT 06423 (US)**

(74) Representative: **Leckey, David Herbert**  
**Dehns**  
**St Bride's House**  
**10 Salisbury Square**  
**London**  
**EC4Y 8JD (GB)**

(54) **Hard anodize of cold spray aluminum layer**

(57) A process for repairing components (60) includes the steps of providing a component (60) having an affected area (44) on a surface (45) of a component (60) to be repaired; depositing a repair material over the affected area (44) on the surface (45) of the component (60) so that the repair material plastically deforms without melting and bonds to the affected area (44) upon impact with the affected area (44) and thereby covers the affected area (44); providing a sulfuric acid based anodizing

solution; anodizing a deposited repair material on the surface (45) of said component (60) in the sulfuric acid based anodizing solution; consuming only a portion of the deposited repair material to form a hard anodized coating layer upon the deposited repair material to form a hard anodized coated component (60); providing a corrosion resistant sealant solution; and contacting a hard anodized coated component with the corrosion resistant sealant solution to form a corrosion resistant sealant coating on the hard anodized coated component (60).



**FIG. 1**  
(PRIOR ART)



## EUROPEAN SEARCH REPORT

Application Number

EP 09 25 2862

DOCUMENTS CONSIDERED TO BE RELEVANT			CLASSIFICATION OF THE APPLICATION (IPC)
Category	Citation of document with indication, where appropriate, of relevant passages	Relevant to claim	
X	EP 1 829 988 A1 (PRAXAIR SURFACE TECHNOLOGIES G [DE]; ROEDER PRAEZ GMBH [DE]) 5 September 2007 (2007-09-05) * paragraph [0034]; claims 1-8,11,13 *	1-3, 10-12, 14,15 -----	INV. C23C24/04 C25D11/08 C25D11/16 C25D11/24 F01D5/00
Y	US 2006/134320 A1 (DEBICCAR ANDREW [US] ET AL) 22 June 2006 (2006-06-22) * paragraphs [0013], [0015], [0025], [0027]; claims 1-5,16-18 *	4-6,8,9 -----	
A	US 2006/240192 A1 (RAYBOULD DEREK [US] ET AL) 26 October 2006 (2006-10-26) * claims 1,4,6,9 *	2,15 -----	
Y	US 2002/066770 A1 (JAMES ALLISTER WILLIAM [US] ET AL) 6 June 2002 (2002-06-06) * paragraphs [0007], [0025] *	6-8 -----	
Y	US 4 504 325 A (MOJI YUKIMORI [US]) 12 March 1985 (1985-03-12) * column 3, lines 1-20 *	13 -----	
Y	US 5 304 257 A (PEARLSTEIN FRED [US] ET AL) 19 April 1994 (1994-04-19) * column 8, line 58 - column 9, line 7 *	13 -----	
X	DE 103 59 046 A1 (NEWSPRAY GMBH RHEINFELDEN [CH]) 28 July 2005 (2005-07-28) * claims 1-8 *	14,15 -----	
A		1	
X	EP 1 832 671 A2 (LINDE AG [DE]) 12 September 2007 (2007-09-12) * the whole document *	14,15 -----	
A		1-5	
X	EP 1 832 670 A2 (LINDE AG [DE]) 12 September 2007 (2007-09-12) * the whole document *	14,15 -----	
A		1-5	
The present search report has been drawn up for all claims			
1	Place of search The Hague	Date of completion of the search 9 June 2010	Examiner Chalaftris, Georgios
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 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 & : member of the same patent family, corresponding document			

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

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

09-06-2010

Patent document cited in search report		Publication date	Patent family member(s)		Publication date
EP 1829988	A1	05-09-2007	AU	2007220704 A1	07-09-2007
			CA	2643717 A1	07-09-2007
			WO	2007098885 A1	07-09-2007
			JP	2009528939 T	13-08-2009
			KR	20090007306 A	16-01-2009
			US	2009148622 A1	11-06-2009
			ZA	200808371 A	25-11-2009
<hr/>					
US 2006134320	A1	22-06-2006	CN	1800447 A	12-07-2006
			EP	1674595 A2	28-06-2006
			JP	2006176881 A	06-07-2006
			KR	20060071316 A	26-06-2006
			MX	PA05013992 A	20-06-2006
			SG	123724 A1	26-07-2006
<hr/>					
US 2006240192	A1	26-10-2006	EP	1877598 A1	16-01-2008
			WO	2006115662 A1	02-11-2006
<hr/>					
US 2002066770	A1	06-06-2002	NONE		
<hr/>					
US 4504325	A	12-03-1985	NONE		
<hr/>					
US 5304257	A	19-04-1994	US	5374347 A	20-12-1994
<hr/>					
DE 10359046	A1	28-07-2005	NONE		
<hr/>					
EP 1832671	A2	12-09-2007	NONE		
<hr/>					
EP 1832670	A2	12-09-2007	DE 102006010520	A1	13-09-2007
<hr/>					