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(54) Title: METHOD FOR A TRANSVERSE FILLING INSIDE AN ELONGATED NARROW CAVITY

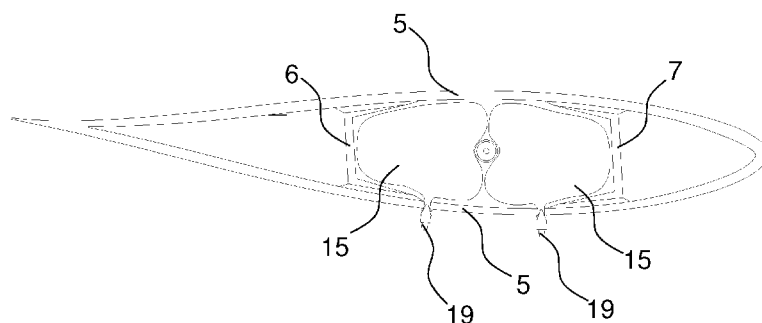


Fig. 2b

(57) Abstract: The invention concerns a method for performing a task in a tight place in an elongated profile, preferably in a wing blade with an outer shell for a wind power plant, whereby is formed at least one barrier transversely of at least one elongated channel in the profile. The invention further includes a balloon for use by the task. The method may include the following steps: establishing a number of inspection and mounting holes in the surface of the shell, mounting one or more inflatable balloons in the channel in question, filling the balloon or balloons with air, and applying at least one first material layer between the sidewalls of the elongated channel and across the balloons, where the layer preferably is expanding polyurethane foam. The applied layer of material fills cracks and gaps between balloons and wing parts, further forming a load-bearing layer between these parts. An additional layer may subsequently be laid upon the former layer.

INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

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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)

F03D B29C

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 practical, search terms used)

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C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 6 321 793 B1 (CZAPLICKI MICHAEL J [US] ET AL) 27 November 2001 (2001-11-27)	1-3,7-9
Y	column 2, lines 22-61; figures 1,6,7a,7b column 3, lines 24-49 column 5, line 17 - column 6, line 10; claims 1,3,17,18,22	4-6
X	& EP 1 356 911 A2 (L & L PRODUCTS INC [US]) 29 October 2003 (2003-10-29)	1-3,7-9
Y		4-6
Y	NL 9 100 816 A (AERPAC HOLDING B V) 1 December 1992 (1992-12-01)	4-6
A	page 1, lines 2-7,14-20; figures 2,3 page 2, lines 13-21; figure 5 ----- -/-	7

☒ Further documents are listed in the continuation of Box C.

☒ See patent family annex.

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C(Continuation). DOCUMENTS CONSIDERED TO BE RELEVANT		
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	EP 1 413 502 A2 (HENKEL KGAA [DE]) 28 April 2004 (2004-04-28) cited in the application paragraphs [0005], [0008], [0009], [0014], [0015], [0019] - [0021]; figures 7,8 -----	1-3,7-9
A	EP 1 538 332 A2 (REPOWER SYSTEMS AG [DE]) 8 June 2005 (2005-06-08) paragraph [0015] -----	3
A	EP 1 428 744 A1 (HENKEL KGAA [DE]) 16 June 2004 (2004-06-16) paragraphs [0009] - [0011], [0015], [0017], [0018], [0020] - [0024], [0026] - [0030] -----	1-9
A	US 4 029 128 A (YAMAGISHI SHIGEHARU) 14 June 1977 (1977-06-14) the whole document -----	1-9
A	EP 1 426 273 A2 (ARVINMERITOR TECHNOLOGY LLC [US]) 9 June 2004 (2004-06-09) paragraph [0015] -----	1-9
A	US 1 814 677 A (ALBERT FENNEMA) 14 July 1931 (1931-07-14) the whole document -----	1-9

INTERNATIONAL SEARCH REPORT

Information on patent family members

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Patent document cited in search report		Publication date	Patent family member(s)	Publication date
US 6321793	B1	27-11-2001	AT 477161 T AU 7537201 A CA 2411275 A1 EP 1294605 A1 MX PA02012297 A WO 0196170 A1	15-08-2010 24-12-2001 20-12-2001 26-03-2003 06-09-2004 20-12-2001
NL 9100816	A	01-12-1992	NONE	
EP 1413502	A2	28-04-2004	CA 2442350 A1 US 2004074150 A1	01-04-2004 22-04-2004
EP 1538332	A2	08-06-2005	DE 10357026 B3	09-06-2005
EP 1428744	A1	16-06-2004	CA 2453096 A1 US 2004135058 A1	13-06-2004 15-07-2004
US 4029128	A	14-06-1977	NONE	
EP 1426273	A2	09-06-2004	DE 60312112 T2 ES 2281608 T3 JP 2004182227 A	31-10-2007 01-10-2007 02-07-2004
US 1814677	A	14-07-1931	NONE	