

(19) World Intellectual Property Organization
International Bureau



(43) International Publication Date
4 September 2008 (04.09.2008)

PCT

(10) International Publication Number
WO 2008/105923 A3

- (51) International Patent Classification:
B64C 27/52 (2006.01)
- (21) International Application Number:
PCT/US2007/076754
- (22) International Filing Date: 24 August 2007 (24.08.2007)
- (25) Filing Language: English
- (26) Publication Language: English
- (30) Priority Data:

60/839,774	24 August 2006 (24.08.2006)	US
60/954,684	8 August 2007 (08.08.2007)	US
60/954,685	8 August 2007 (08.08.2007)	US
- (71) Applicant (for all designated States except US): AMERICAN DYNAMICS FLIGHT SYSTEMS, INC [US/US];
4062-601g Grummer Blvd, Calverton, NY 11933 (US).
- (74) Agents: WITHSTANDLEY, Peter et al.; Baker Botts L.l.p., 30 Rockefeller Plaza, New York, NY 10112-4498 (US).
- (81) Designated States (unless otherwise indicated, for every kind of national protection available): AE, AG, AL, AM,

- AT, AU, AZ, BA, BB, BG, BH, BR, BW, BY, BZ, CA, CH, 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, NO, NZ, OM, PG, PH, PL, PT, RO, RS, RU, SC, SD, SE, SG, SK, SL, SM, SV, SY, TJ, TM, TN, TR, TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.
- (84) Designated States (unless otherwise indicated, for every kind of regional protection available): ARIPO (BW, GH, GM, KE, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG, ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European (AT, BE, BG, CH, CY, CZ, DE, DK, EE, ES, FI, FR, GB, GR, HU, IE, IS, IT, LT, LU, LV, MC, MT, NL, PL, PT, RO, SE, SI, SK, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ, GW, ML, MR, NE, SN, TD, TG).

Published:
— with international search report

[Continued on next page]

(54) Title: HIGH TORQUE AERIAL LIFT (HTAL)

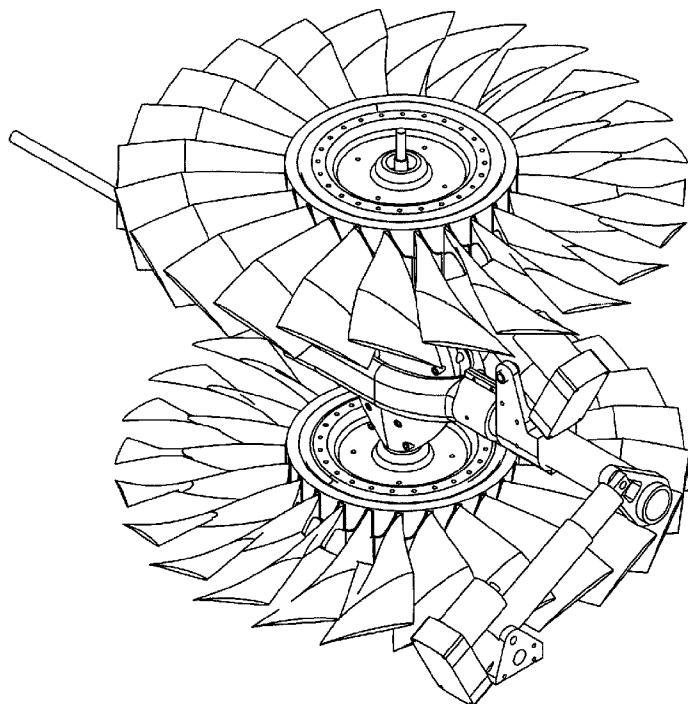


FIG. 1

(57) Abstract: An aircraft includes a housing and a powerplant coupled to the housing and configured to rotate a drive shaft around its longitudinal axis. The aircraft may include at least one lift fan assembly coupled to its housing and including a gearbox and at least one lift fan. The gearbox is coupled to the drive shaft and configured to transfer rotational energy from the drive shaft to the lift fan or fans. The lift fan assembly or assemblies may include at least two pivot assemblies, the first pivot assembly configured to pivot the lift fan assembly on a first axis and the second pivot assembly configured to pivot the lift fan assembly on a second axis that is substantially perpendicular to the first axis.

WO 2008/105923 A3



(88) Date of publication of the international search report:
30 April 2009

INTERNATIONAL SEARCH REPORT

International application No.
PCT/US2007/076754

<p>A. CLASSIFICATION OF SUBJECT MATTER IPC(8) - B64C 27/52 (2008.04) USPC - 244/66 According to International Patent Classification (IPC) or to both national classification and IPC</p>																	
<p>B. FIELDS SEARCHED</p> <p>Minimum documentation searched (classification system followed by classification symbols) IPC(8) - B64C 27/52 (2008.04) USPC - 244/12.4, 56, 66</p> <p>Documentation searched other than minimum documentation to the extent that such documents are included in the fields searched</p> <p>Electronic data base consulted during the international search (name of data base and, where practicable, search terms used) PatBase, Google Patents</p>																	
<p>C. DOCUMENTS CONSIDERED TO BE RELEVANT</p> <table border="1"> <thead> <tr> <th>Category*</th> <th>Citation of document, with indication, where appropriate, of the relevant passages</th> <th>Relevant to claim No.</th> </tr> </thead> <tbody> <tr> <td>X -- Y</td> <td>US 6,719,244 A (GRESS) 13 April 2004 (13.04.2004) entire document</td> <td>1-3, 5-7, 9, 12, 14-17, 19, 21, 22 ----- 4, 8, 10, 11, 13, 20</td> </tr> <tr> <td>Y</td> <td>US 3,029,048 A (BROOKS et al) 10 April 1962 (10.04.1962) entire document</td> <td>4</td> </tr> <tr> <td>Y</td> <td>US 5,368,256 A (CARLILE et al) 29 November 1994 (29.11.1994) entire document</td> <td>8, 13, 20</td> </tr> <tr> <td>Y</td> <td>US 5,823,468 A (BERN et al) 20 October 1998 (20.10.1998) entire document</td> <td>10, 11</td> </tr> </tbody> </table>			Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.	X -- Y	US 6,719,244 A (GRESS) 13 April 2004 (13.04.2004) entire document	1-3, 5-7, 9, 12, 14-17, 19, 21, 22 ----- 4, 8, 10, 11, 13, 20	Y	US 3,029,048 A (BROOKS et al) 10 April 1962 (10.04.1962) entire document	4	Y	US 5,368,256 A (CARLILE et al) 29 November 1994 (29.11.1994) entire document	8, 13, 20	Y	US 5,823,468 A (BERN et al) 20 October 1998 (20.10.1998) entire document	10, 11
Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.															
X -- Y	US 6,719,244 A (GRESS) 13 April 2004 (13.04.2004) entire document	1-3, 5-7, 9, 12, 14-17, 19, 21, 22 ----- 4, 8, 10, 11, 13, 20															
Y	US 3,029,048 A (BROOKS et al) 10 April 1962 (10.04.1962) entire document	4															
Y	US 5,368,256 A (CARLILE et al) 29 November 1994 (29.11.1994) entire document	8, 13, 20															
Y	US 5,823,468 A (BERN et al) 20 October 1998 (20.10.1998) entire document	10, 11															
<p><input type="checkbox"/> Further documents are listed in the continuation of Box C. <input type="checkbox"/></p>																	
<p>* Special categories of cited documents:</p> <table border="0"> <tr> <td>"A" document defining the general state of the art which is not considered to be of particular relevance</td> <td>"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</td> </tr> <tr> <td>"E" earlier application or patent but published on or after the international filing date</td> <td>"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</td> </tr> <tr> <td>"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)</td> <td>"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</td> </tr> <tr> <td>"O" document referring to an oral disclosure, use, exhibition or other means</td> <td>"&" document member of the same patent family</td> </tr> <tr> <td>"P" document published prior to the international filing date but later than the priority date claimed</td> <td></td> </tr> </table>			"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	"E" earlier application or patent but published on or after the international filing date	"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	"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						
"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																
"E" earlier application or patent but published on or after the international filing date	"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																
"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																	
<p>Date of the actual completion of the international search 27 August 2008</p>		<p>Date of mailing of the international search report 09 SEP 2008</p>															
<p>Name and mailing address of the ISA/US Mail Stop PCT, Attn: ISA/US, Commissioner for Patents P.O. Box 1450, Alexandria, Virginia 22313-1450 Facsimile No. 571-273-3201</p>		<p>Authorized officer: Blaine R. Copenheaver PCT Helpdesk: 571-272-4300 PCT OSP: 571-272-7774</p>															