



(51) International Patent Classification:

**B64C 9/34** (2006.01)      **B64C 3/38** (2006.01)  
**B64C 13/18** (2006.01)      **B64C 13/28** (2006.01)

(21) International Application Number:

PCT/US2010/048323

(22) International Filing Date:

9 September 2010 (09.09.2010)

(25) Filing Language:

English

(26) Publication Language:

English

(30) Priority Data:

61/240,985    9 September 2009 (09.09.2009)      US

(71) Applicant (for all designated States except US):  
**AEROVIRONMENT, INC.** [US/US]; 181 West Hunt-  
ington Drive, Suite 202, Monrovia, California 91016  
(US).

(72) Inventors; and

(75) Inventors/Applicants (for US only): **MIRALLES, Car-  
los, Thomas** [US/US]; 3433 Viewcrest Drive, Burbank,  
California 91504 (US). **PLUMB, Nick** [US/US]; 181  
West Huntington Drive, Suite 202, Monrovia, California  
91016 (US). **TAU, Shuo** [CN/US]; 1540 Crater Street,  
Simi Valley, California 93063 (US). **OLSEN, Nathan**  
[US/US]; 181 West Huntington Drive, Monrovia, Califor-  
nia 91016 (US).

(74) Agent: **BROOKS, Michael, Blaine**; 1445 East Los An-  
geles Avenue, Suite 208, Simi Valley, California  
93065-2827 (US).

(81) Designated States (unless otherwise indicated, for every  
kind of national protection available): AE, AG, AL, AM,  
AO, AT, AU, AZ, BA, BB, BG, BH, 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,  
NO, NZ, OM, PE, PG, PH, PL, PT, RO, RS, RU, SC, SD,  
SE, SG, SK, SL, SM, ST, SV, SY, TH, TJ, TM, TN, TR,  
TT, TZ, UA, UG, US, UZ, VC, VN, ZA, ZM, ZW.

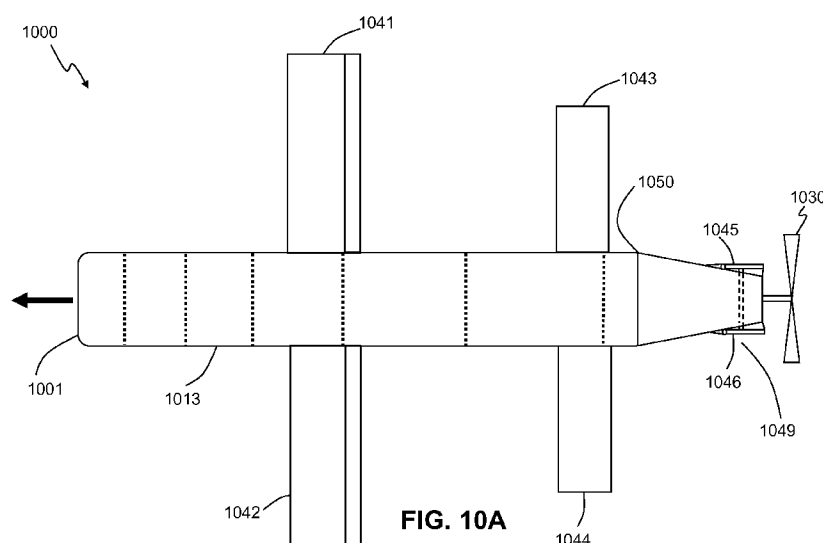
(84) Designated States (unless otherwise indicated, for every  
kind of regional protection available): ARIPO (BW, GH,  
GM, KE, LR, LS, MW, MZ, NA, SD, SL, SZ, TZ, UG,  
ZM, ZW), Eurasian (AM, AZ, BY, KG, KZ, MD, RU, TJ,  
TM), European (AL, AT, BE, BG, CH, CY, CZ, DE, DK,  
EE, ES, FI, FR, GB, GR, HR, HU, IE, IS, IT, LT, LU,  
LV, MC, MK, MT, NL, NO, PL, PT, RO, SE, SI, SK,  
SM, TR), OAPI (BF, BJ, CF, CG, CI, CM, GA, GN, GQ,  
GW, ML, MR, NE, SN, TD, TG).

**Declarations under Rule 4.17:**

- as to applicant's entitlement to apply for and be granted  
a patent (Rule 4.17(ii))
- as to the applicant's entitlement to claim the priority of  
the earlier application (Rule 4.17(iii))

[Continued on next page]

(54) Title: ELEVON CONTROL SYSTEM



**FIG. 10A**

(57) Abstract: A system comprising an aerial vehicle or an unmanned aerial vehicle (UAV) (100,400,1000,1500) configured to control pitch, roll, and/or yaw via airfoils (141,142,1345,1346) having resiliently mounted trailing edges opposed by fuselage-house deflecting actuator horns (621,622). Embodiments include one or more rudder elements (1045, 1046,1145, 1146,1245, 1345, 1346,1445, 1446,1545, 1546) which may be rotatably attached and actuated by an effector member (1049,1149,1249,1349) disposed within the fuselage housing (1001) and extendible in part to engage the one or more rudder elements.



---

**Published:**

- *without international search report and to be republished  
upon receipt of that report (Rule 48.2(g))*