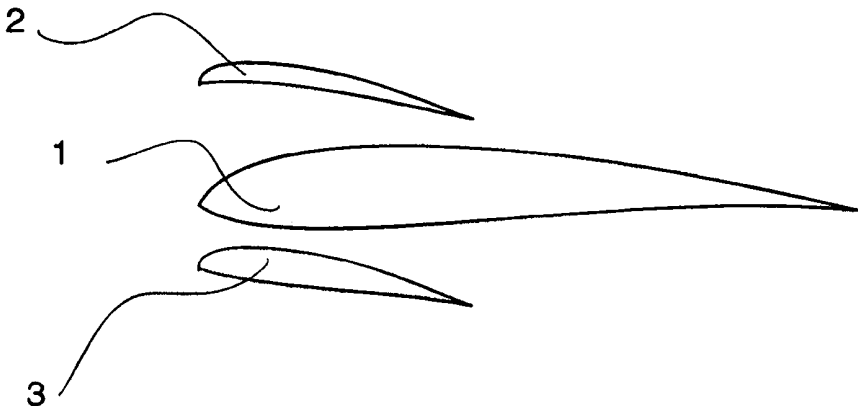




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(21) International Application Number: PCT/BR99/00057 (22) International Filing Date: 5 July 1999 (05.07.99) (30) Priority Data: PI 9806466-5 6 July 1998 (06.07.98) BR (71)(72) Applicant and Inventor: BITTENCOURT SAMPAIO, Eduardo [BR/BR]; Aptº 601, Rua São Clemente, 462, CEP-22260-000 Rio de Janeiro, RJ (BR).		(81) Designated States: AL, AM, AT, AU, AZ, BA, BB, BG, BR, BY, CA, CH, CN, CU, CZ, DE, DK, EE, ES, FI, GB, GE, GH, GM, HR, HU, ID, IL, IS, JP, KE, KG, KP, KR, KZ, LC, LK, LR, LS, LT, LU, LV, MD, MG, MK, MN, MW, MX, NO, NZ, PL, PT, RO, RU, SD, SE, SG, SI, SK, SL, TJ, TM, TR, TT, UA, UG, US, UZ, VN, YU, ZW, ARIPO patent (GH, GM, KE, LS, MW, SD, SL, SZ, UG, ZW), Eurasian patent (AM, AZ, BY, KG, KZ, MD, RU, TJ, TM), European patent (AT, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU, MC, NL, PT, SE), OAPI patent (BF, BJ, CF, CG, CI, CM, GA, GN, GW, ML, MR, NE, SN, TD, TG). Published <i>With international search report.</i> <i>Before the expiration of the time limit for amending the claims and to be republished in the event of the receipt of amendments.</i> (88) Date of publication of the international search report: 15 June 2000 (15.06.00)
(54) Title: A DEVICE FOR GENERATING AN AERODYNAMIC FORCE BY DIFFERENTIALLY ACCELERATING THE FLUID IN THE TWO SIDES OF A SURFACE <div style="text-align: center;">  </div> (57) Abstract <p>The present invention refers to a device which accelerates the fluid (in which the device is immersed) differentially immediately below and immediately above a surface (1). This acceleration can be obtained through a convergent/divergent channel, resulting in a greater fluid velocity in one of the faces of the surface. As greater speeds means lower pressures, there is a resulting force acting upon the surface. This force can be used to lift airplanes, helicopters, autogyros, or other aircraft in the air. Also it can be used to power sailboats, being a suitable replacing for the traditional sails. The convergent and divergent channels can assume several configurations, the two main categories being: a convergent (or divergent) channel in which the convergence occurs in the cross-sectional plane; and a convergent (or divergent) channel in which the convergence occurs in the horizontal plane, thus requiring a 3D geometry to represent the device. The former is illustrated in figures 1-5, while the later in figures 7-12. The concept object of this invention can also be used to design an aerodynamic brake, in which the low pressure jet stream leaving the convergent channel (11) can be blown over the top of the structure (12), thus increasing the drag force.</p>		

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INTERNATIONAL SEARCH REPORT

International application No.
PCT/BR 99/00057

A. CLASSIFICATION OF SUBJECT MATTER

IPC⁷: B64C, 23/00

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)

IPC⁷: B64C, 23/00, 21/00, 3/50

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)

WPI

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
A	DE 2353245 (DORNIER GMBH) 30 April 1975 (30.04.75), fig.1-4.	1,3,4
A	DE 2819649 (LOEWE) 08 November 1979 (08.11.79), claim 2+3.	1,3
A	DE 3827796 A1 (WEINERT) 22 February 1990 (22.02.90), fig.2.	1
A	US 4830315 A (PRESZ, JR et al.) 16 May 1989 (16.05.89), see fig.13.	9

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

☒ See patent family annex.

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Date of the actual completion of the international search

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INTERNATIONAL SEARCH REPORT

Information on patent family members

International application No.

PCT/BR 99/00057

Patent document cited in search report			Publication date	Patent family member(s)	Publication date
DE	A1	2353245	30-04-1975	none	
DE	B2	2353245	23-06-1977		
DE	C3	2353245	02-02-1978		
DE	A1	2819649	08-11-1979	none	
DE	A1	3827796	22-02-1990	none	
US	A	830315a4		none	