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McGinnis

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(54) **EFFICIENT CONTROL AND STALL PREVENTION IN ADVANCED CONFIGURATION AIRCRAFT**

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USPC ..... **244/45 R**

(58) **Field of Classification Search**
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See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

1,971,591	A	8/1934	Zaparka	
1,971,592	A	8/1934	Zaparka	
2,194,596	A *	3/1940	Henter	244/13
3,202,383	A *	8/1965	Le Bel et al.	244/209
3,834,654	A *	9/1974	Miranda	244/13
3,981,460	A *	9/1976	Ratony	244/13
4,053,125	A *	10/1977	Ratony	244/46
4,090,681	A *	5/1978	Zimmer	244/45 R
4,146,199	A *	3/1979	Wenzel	244/45 R
4,365,773	A *	12/1982	Wolkovitch	244/45 R
D304,821	S *	11/1989	Ratony	D12/331
D308,043	S *	5/1990	Butler	D12/342
D311,720	S *	10/1990	Butler	D12/331
5,503,352	A *	4/1996	Eger	244/45 R
5,899,409	A *	5/1999	Frediani	244/13
6,098,923	A *	8/2000	Peters, Jr.	244/45 R
6,840,478	B2 *	1/2005	Carr	244/45 R
2006/0108472	A1 *	5/2006	Clark	244/87
2006/0144991	A1 *	7/2006	Frediani	244/45 R

OTHER PUBLICATIONS

George C. Greene, Viscous Induced Drag; AIAA A88-42196, 1988.
Paul Seidenman and David Spanovich, Cutting Fuel Costs; Aviation Week & Space Technology, Jul. 25, 2005.

* cited by examiner

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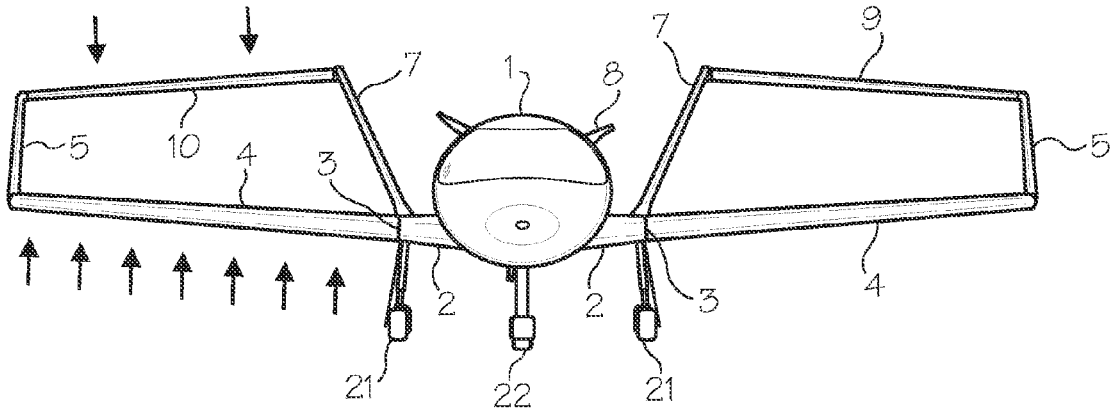
(57) **ABSTRACT**

Multiple initiatives are applied to achieve synergistic control enhancement and drag reduction benefits in an aircraft having independent airfoils producing downward force opposite to wing lift in normal flight, which are supported in specific wingtip locations. A method is disclosed teaching the exemplary stall resistance and control at high angles of attack demonstrated by preferred embodiments of the invention.

17 Claims, 15 Drawing Sheets