

(12) **United States Patent**
Davies

(10) **Patent No.:** **US 8,676,692 B2**
(45) **Date of Patent:** **Mar. 18, 2014**

(54) **SYSTEM AND METHOD FOR AIR TRAVEL
COMMERCIALIZATION**

(76) Inventor: **Scott R. Davies**, Allentown, PA (US)

(*) Notice: Subject to any disclaimer, the term of this patent is extended or adjusted under 35 U.S.C. 154(b) by 939 days.

(21) Appl. No.: **12/625,500**

(22) Filed: **Nov. 24, 2009**

(65) **Prior Publication Data**
US 2010/0131402 A1 May 27, 2010

Related U.S. Application Data

(60) Provisional application No. 61/117,339, filed on Nov. 24, 2008.

(51) **Int. Cl.**
G06Q 40/00 (2012.01)

(52) **U.S. Cl.**
USPC **705/37; 705/7.12; 705/7.29**

(58) **Field of Classification Search**
USPC **705/7.12, 7.29, 37**
See application file for complete search history.

(56) **References Cited**

U.S. PATENT DOCUMENTS

2,183,915	A *	12/1939	Killingstad	.....	426/482
6,134,500	A *	10/2000	Tang et al.	.....	701/528
6,246,342	B1 *	6/2001	Vandevoorde et al.	.....	340/961
6,584,400	B2 *	6/2003	Beardsworth	.....	701/120
2003/0093187	A1 *	5/2003	Walker	.....	701/1
2007/0106594	A1 *	5/2007	Vlahoplus et al.	.....	705/37
2008/0201183	A1 *	8/2008	Jha et al.	.....	705/7
2010/0131402	A1 *	5/2010	Davies	.....	705/37

OTHER PUBLICATIONS

Ball et al. Auctions for the Safe, Efficient and Equitable Allocation of Airspace System Resources. George Mason University. Fairfax, VA 22030.*

Hoffman et al. A comparison of Formulations for the Single-Airport Ground-Holding Problem with Bnaking Constraints. Operations Research. Jul./Aug. 2000; ABI/INFORM Global p. 578.*
Wald, Matthew L. U.S. Plans Steps to Ease Congestion at Airports. The New York Times. Published: May 17, 2008.*
Dorothy Robyn, Reforming the Air Traffic Control System to Promote Efficiency and Reduce Delays, Oct. 29, 2007.
Dorothy Robyn, Air Support: Creating a Safer and More Reliable Air Traffic Control System, Discussion Paper 2008-11, Jul. 2008.
Michael Ball, George L. Donohue, and Karla Hoffman, Auctions for the Safe, Efficient, and Equitable Allocation of Airspace System Resources.

* cited by examiner

Primary Examiner — Muriel Tinkler
(74) *Attorney, Agent, or Firm* — Design IP

(57) **ABSTRACT**

System and methods are provided for the definition and commoditization of a four-dimensional trajectory of airspace, i.e., a bundle of spatially-contiguous, three-dimensional volumetric units of airspace at distinct, finite, and contiguous periods of time. The three primary determinants of air transportation throughput, i.e., seat and freight capacity, runway environment capacity, and safe-separation airspace capacity, are individually defined and commoditized. In an illustrative implementation, parties may compete to offer units of safe-separation airspace capacity, which may be bundled together to form a four-dimensional trajectory, and/or runway environment capacity, which may collectively comprise a particular flight bundle. This flight bundle may then be sold on a commodities market to the highest-bidding seat and freight capacity provider. In a further illustrative implementation, a seat and freight capacity provider may purchase a flight bundle comprising a primary four-dimensional trajectory and one or more contingent four-dimensional trajectories or portions thereof.

20 Claims, 9 Drawing Sheets

