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[Continued on next page]

(54) Title: ELEVATORS AND COUNTERWEIGHTS MOVING INDEPENDENTLY IN HOISTWAY

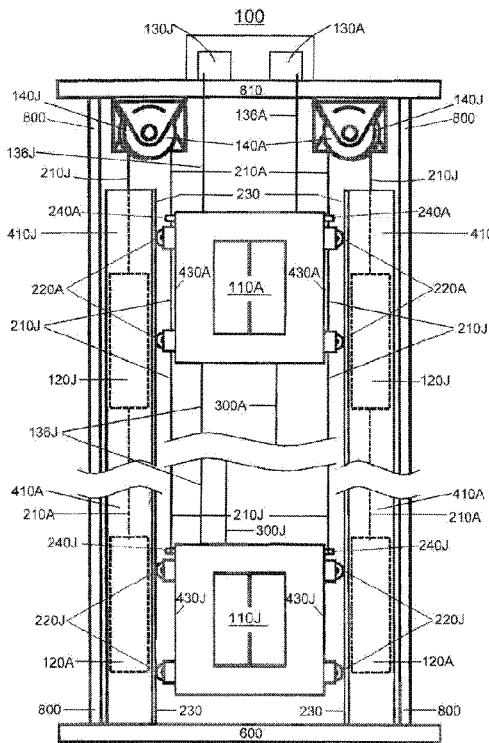


FIG. 8

(57) Abstract: An elevator system which utilizes a plurality of independently moving cabs and counterweights in each elevator shaft. Each cab is connected to one or more spatially separated counterweights at different counterweight connection points. The connection points are horizontally shifted on different cabs in order to prevent interference between cabs, cables, pulleys and counterweights. The top cab may have one counterweight cable and may be connected to one or more counterweights by connection points on the roof of the cab. The cabs are mounted on two opposing vertical guide rails, and each guide rail is mounted at the center of one side of the elevator shaft. The system includes a motor attached to each of the cabs by one or more lift cables to facilitate the independent movement of all cabs. Existing buildings can also be retrofit for compatibility with the present invention.

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INTERNATIONAL SEARCH REPORT

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A. CLASSIFICATION OF SUBJECT MATTER

IPC(8) - B66B 1/44, 7/06 (2015.01)

CPC - B66B 11/0095

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)

IPC(8) Classification(s): B66B 1/44, 1/24, 7/06, 11/04, 11/08 (2015.01)

CPC Classification(s): B66B 1/2466, 9/083, 11/0095; USPC Classification(s): 187/247, 249

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)

PatSeer (US, EP, WO, JP, DE, GB, CN, FR, KR, ES, AU, IN, CA, INPADOC Data); Google; Google Scholar; ProQuest; IP.com; keywords: elevator, lift, shaft, weight, cable, private, motor, carbon fiber

C. DOCUMENTS CONSIDERED TO BE RELEVANT

Category*	Citation of document, with indication, where appropriate, of the relevant passages	Relevant to claim No.
X	US 5,699,879 A (SAKITA M) December 23, 1997; figures 2-4; column 4, lines 1-5; column 5, lines 10-20, 30-65; column 6, lines 15-20; column 7, lines 30-40	1-8, 11, 12, 15, 16-20, 25-32
X	US 2012/0193170 A1 (JACOBS J) August 2, 2012; figures 1, 3A-3D, 4, 7; paragraphs [0005], [0018]-[0020], [0022]-[0027], [0034], [0042]-[0046]	1, 5, 9-14, 21-24, 28, 33-57
A	US 2013/0118837 A1 (THYSSENKRUPP ELEVATOR AG) May 16, 2013; entire document	1-57
A	US 1,896,776 A (JAMES HD) February 7, 1933; entire document	1-57
A	US 2008/0093177 A1 (FARGO R) April 24, 2008; entire document	1-57
A	US 2012/0006626 A1 (ADIFON L) January 12, 2012; entire document	1-57

Further documents are listed in the continuation of Box C.

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