

1) Family number: 54157490 (US2013166119 AA)

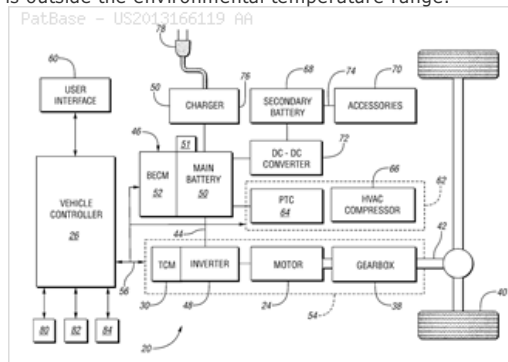
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Title: METHOD AND SYSTEM FOR THERMAL MANAGEMENT OF A HIGH VOLTAGE BATTERY FOR A VEHICLE

Abstract: A method for thermal management of an electric vehicle and the vehicle are provided. A controller is configured to regulate the temperature of a traction battery to within an operating temperature range when the vehicle is operating. The temperature of the battery is regulated to within a charging temperature range when the battery is connected to the charger and power source and the ambient temperature is outside an environmental temperature range. The battery is preconditioned to a battery drive temperature when the ambient temperature is outside the environmental temperature range and the battery is connected to the charger and power source. The cabin in the vehicle is preconditioned to a cabin temperature when the vehicle is connected to the charger and power source and the ambient temperature is outside the environmental temperature range.

Classifications:

International (IPC 8-9): B60H1/00 B60L11/18 B60L15/20 B60L58/26 B60L58/27 H01M10/50 H01M10/625 H01M10/66 B60L2240/34 B60L2240/545 B60L2240/662 B60L58/12 B60L58/26 B60L58/27 H01M10/443 H01M10/486 H01M10/625 Y02E60/10 Y02T10/70 Y02T10/72 Y02T10/88 Y02T90/16
US: 180/65.1 180/65.21 318/139 701/22



Family:

Publication number	Publication date	Application number	Application date
CN103171450 A	20130626	CN201210563324	20121221
CN103171450 B	20151118	CN201210563324	20121221
DE102012223054 A1	20130627	DE201210223054	20121213
DE102012223054 B4	20190425	DE201210223054	20121213
US2013166119 AA	20130627	US20120453033	20120423
US8620506 BB	20131231	US20120453033	20120423

Priority:

US20110578836P 20111221 US20120453033 20120423

Probable Assignee: FORD GLOBAL TECHNOLOGIES LLC

Assignee(s): (std): BURROWS NEIL ROBERT ; FORD GLOBAL TECH LLC ; FORD GLOBAL TECHNOLOGIES INC ; GILLESPEY BRIAN ; GRIMES JEFFERY R ; GRIMES JEFFREY R ; KING KIMBERLEY ; KUMMER ANDY ; WOJTKOWICZ SCOTT

Assignee(s): FORD GLOBAL TECHNOLOGIES LLC

Inventor(s): (std): BURROWS NEIL ROBERT ; GILLESPEY BRIAN ; GRIMES JEFFERY R ; GRIMES JEFFREY R ; KING KIMBERLEY ; KUMMER ANDY ; WOJTKOWICZ SCOTT

Agent(s): BROOKS KUSHMAN PC; DAVID

2) Family number: 55156954 (US2015084414 AA)

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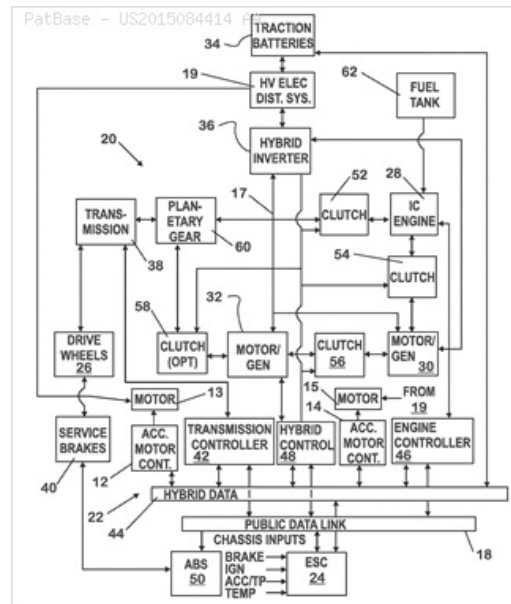
Title: ISOLATION CONTACTOR TRANSITION POLARITY CONTROL

Abstract: An electrical power distribution system includes a dual mode electrical motor/generator, high voltage traction batteries, bi-directional direct current power transmission lines connectable between the dual mode electrical motor/generator and the high voltage traction batteries, first and second isolation contactors including magnetic blow out and connected into the power transmission lines to exhibit opposed polarity and an electrical system controller. In order to deenergize the electrical power distribution system the polarity of current on the bi-directional transmission lines is determined. Once the polarity has been determined the isolation contactor of corresponding polarity is selected to be opened.

Classifications:

International (IPC 8-9): B60K6/28 B60K6/445 B60K6/54 B60L1/00 B60L1/02 B60L11/00 B60L11/12 B60L11/14 B60L11/18 B60L15/20 B60L3/00 B60L50/15 B60L50/16 B60L7/14 B60L7/26 B60W10/24 B60W10/26 B60W20/00 H01H33/18 H02J7/00 B60K6/28 B60K6/442 B60L1/003 B60L1/02 B60L15/2009 B60L2210/40 B60L2220/14 B60L2240/34 B60L2240/423 B60L2240/662 B60L2240/667 B60L2270/20 B60L3/0069 B60L50/16 B60L50/40 B60L50/61 B60L53/00 B60L53/57 B60L58/12 B60L58/21 B60L58/26 B60L7/14 B60L7/26 B60W10/08 B60W10/24 B60W10/26 B60W20/00 H01H33/18 H02J7/0069 H02J7/0072 Y02T10/62 Y02T10/64 Y02T10/70 Y02T10/7072 Y02T10/72 Y02T90/12 Y02T90/14 Y02T90/16

JP F-Term: 3D202 5H125 3D202/AA03 3D202/BB00 3D202/BB18
3D202/EE03 3D202/FF04 3D202/FF13 3D202/FF14 5H125/AA01
5H125/AC08 5H125/AC12 5H125/CD04 5H125/EE22 5H125/EE48
JP F-Index: B60K6/20,330 B60K6/445 B60K6/54 B60L3/00@H
B60W10/00,900 B60W10/26,900 B60W20/00



Family:

Publication number	Publication date	Application number	Application date
CA2861987 AA	20140718	CA20122861987	20120510
CN104169152 A	20141126	CN201280071294	20120510
EP2847050 A1	20150318	EP20120876463	20120510
EP2847050 A4	20160106	EP20120876463	20120510
JP2015523257 T2	20150813	JP20150511423T	20120510
KR20150008378 A	20150122	KR20147025103	20120510
US2015084414 AA	20150326	US20120397786	20120510
WO13169251 A1	20131114	WO2012US37195	20120510

Priority:

WO2012US37195 20120510 US20120397786 20120510

Probable Assignee: INT TRUCK INTELLECTUAL PROPERTY CO LLC

Assignee(s): (std): BISSONTZ JAY E ; INT TRUCK INTELLCTUAL PROPERTY CO LLC ; INT TRUCK INTELLECTUAL PROP CO

Assignee(s): ENERGY UNITED STATES DEPARTMENT OF ; INT ENGINE INTELLECTUAL PROPERTY CO LLC ; INT TRUCK INTELLECTUAL PROPERTY CO LLC ; INT TRUCK INTELLECTUAL PROPERTY CO LLC SUITE 7-3E-P18-032701 NAVISTAR DRIVE Lisle IL 60532 US ; JPMORGAN CHASE BANK NA COLLATERAL AGENT AS ; NAVISTAR INT CORP

Inventor(s): (std): BISSONTZ JAY E

Inventor(s): BISSONTZ JAY EUS

Agent(s): BACH MARK C ET AL; DESHIMARU TAKESHI; FINLAYSON AND SINGLEHURST; INO SARI; KUHNEN AND WACKER; KUMAKURA YOSHIO; KURASAWA ICHIRO; MATSUSHITA MITSURU

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PE PG PH PL PT QA RO RS RU SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG UZ VC VN ZA ZM ZW

3) Family number: 52017082 (US2014354195 AA)

Title: POWER SYSTEM SWITCHING BETWEEN CHARGE-DISCHARGE FUNCTION AND DRIVING FUNCTION AND ELECTRIC VEHICLE COMPRISING THE SAME

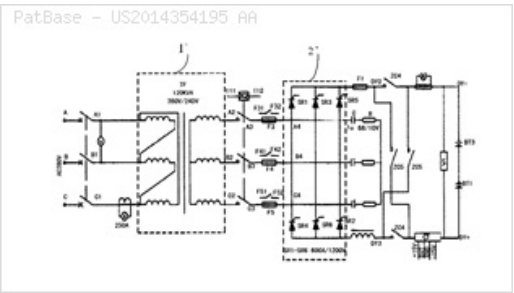
Abstract: A power system switching between a charge-discharge function and a driving function and an electric vehicle including the same are provided. The power system includes a power battery; a charge-discharge socket; a bidirectional DC/DC module; a driving control switch connected with the power battery and the bidirectional DC/DC module; a bidirectional DC/AC module connected with the driving control switch and the power battery; a motor control switch connected with the bidirectional DC/AC module and a motor; a charge-discharge control module connected with the bidirectional DC/AC module and the charge-discharge socket; and a controller module configured to establish a path between the power battery and the motor when a current operation mode of the power system is a driving mode, and to establish a path between the charge-discharge socket and the power battery when the current operation mode of the power system is a charge-discharge mode.

Classifications:

International (IPC 8-9): B60L1/00 B60L11/18 B60L15/00 B60L3/00 B60L50/50 B60L50/51 B60L50/52 B60L53/00 B60L53/10 B60L53/16 B60L53/20 B60L53/22 B60L53/24 B60L53/60 B60L55/00 B60L58/25 B60M7/00 B60R16/02 G01R23/02 G05B19/042 H01F17/04 H01F27/06 H01F27/24 H01F27/30 H01R31/06 H02J3/32 H02J5/00 H02J7/00 H02J7/02 H02J7/04 H02J7/34 H02M7/00 H02P1/00 H02P27/04 H04B3/54 H04L12/40 H04L29/08 H05K7/20

CPC: Y02T10/70 B60L15/00 B60L15/20 B60L2210/10 B60L2210/30 B60L2220/54 B60L2220/56 B60L2240/423 B60L2240/545 B60L2240/547 B60L2240/549 B60L2240/662 B60L3/12 B60L50/51 B60L53/14 B60L53/24

B60L58/12 B60L58/21 B60L58/27 Y02T10/64 Y02T10/7072 Y02T10/72
Y02T90/121 Y02T90/14 Y02T90/16 B60L1/003 B60L1/006 B60L2210/12
B60L2210/14 B60L2210/40 B60L2210/42 B60L2240/527 B60L2240/529
B60L2250/12 B60L2260/22 B60L2260/26 B60L2270/147 B60L2270/20
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B60L58/10 B60L58/25 H02J2007/0067 H02J2207/20 H02J2207/40
H02J2310/48 H02J3/32 H02J5/00 H02J7/0036 H02J7/0063 H02J7/0068
H02J7/007 H02J7/02 H02J7/022 H02J7/342 H02J7/345 H04B3/542
Y02E60/00 Y02T10/92 Y02T90/12 Y02T90/167 Y04S10/126 Y04S30/12
Y04S30/14 B60L11/185 B60L2250/10 B60L53/65 B60L53/67 Y02T90/169
US: 1/1 318/139 320/104 320/109 320/135 320/136 320/137 375/257
701/22



Family:

Publication number	Publication date	Application number	Application date
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Priority:

CN201110458395	20111231	CN201120571932U	20111231	CN201210185660	20120607
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WO2012CN88058 20121231

Probable Assignee: BYD CO LTD

Assignee(s): (std): BYD CO LTD ; SHENZHEN BYD AUTO R AND D CO LTD ; SHENZHEN BYD R AND D CO LTD

Assignee(s): BYD CO ; BYD CO LTD SHENZHEN ; BYD CO SHENZHEN LTD ; SHENZHEN BYD AUTO R AND D CO LTD SHENZHEN ; SHENZHEN BYD AUTO R AND D CO SHENZHEN LTD

Inventor(s): (std): AYONG PENG ; CHEN WEI ; DU ZHIYONG ; FU YU ; GUANGMING YANG ; JIAN LIU ; JIANG HONG ; LI SHUAIHUI ; LI XIAOGANG ; LI YINGTAO ; LI ZHEN ; LIANG QIYUAN ; LIANG ZHU ; LIAO YANG ; LIU JIAN ; LIU MING ; LUO HONGBIN ; MA XIANHONG ; PENG AYONG ; QI AXI ; SHANG XIAOLIANG ; TANG FU ; TANG ZHEQING ; WANG HONGJUN ; WANG WEI ; WANG WEIQUN ; WEI WEI ; XIONG YANFEI ; XU CONG ; XUGUANG ZHOU ; YANG GUANGMING ; YU YILONG ; ZHANG TUO ; ZHANG XIAOHUI ; ZHANG XINXIN ; ZHAO JUN ; ZHEQING TANG ; ZHOU WEI ; ZHOU XUGUANG ; ZHU WOSU

Agent(s): 2K PATENTANWAELTE BLASBERG KEWITZ AND REICHEL; ANOVA LAW GROUP PLLC; D HALLEWEYN NELE VEERLE TREES GERTRUDIS; DHALLEWEYN NELE VEERLE TREES GERTRUDIS; GRABOVAC DALIBOR; HOWARD AND HOWARD ATTORNEYS PLLC; KUDLEK AND GRUNERT PATENTANWAELTE; LERNER DAVID LITTENBERG KRUMHOLZ AND MENTLIK LLP; M PATENT GROUP; MAIWALD PATENTANWALTS GMBH; STOECKELER FERDINAND; TSINGYIHUA INTELLECTUAL PROPERTY LLC; ZINKLER FRANZ

Designated states: AE AG AL AM AO AT AU AZ BA BB BE BF BG BH BJ BN BR BW BY BZ CA CF CG CH CI CL CM CN CO CR CU CY CZ DE DK DM DO DZ EC EE EG ES FI FR GA GB GD GE GH GM GN GQ GR GT GW HN HR HU ID IE IL IN IS IT JP KE KG KM KN KP KR KZ LA LC LI LK LR LS LT LU LV LY MA MC MD ME MG MK ML MN MR MT MW MX MY MZ NA NE NG NI NL NO NZ OM PA PE PG PH PL PT QA RO RS RU RW SC SD SE SG SI SK SL SM SN ST SV SY SZ TD TG TH TJ TM TN TR TT TZ UA UG US UZ VC VN ZA ZM ZW

4) Family number: 64748841 (CN106347169 A) © PatBase

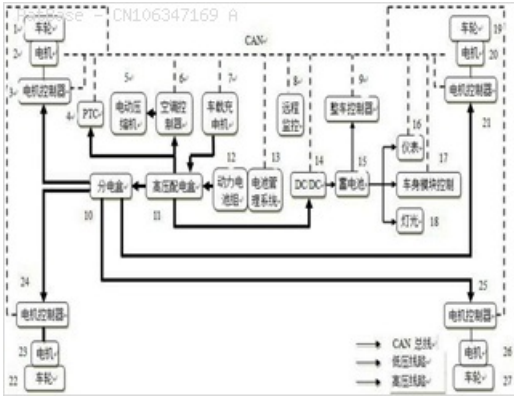
Title: DISTRIBUTED FOUR-WHEEL DRIVE PURE ELECTRIC VEHICLE ELECTRICAL SYSTEM

Abstract: The invention provides a distributed four-wheel drive pure electric vehicle electrical system. The system comprises a power battery pack, a battery management system, a high voltage distribution box, an adapter junction box, a vehicle-mounted charger, a DCDC, an air-conditioner compressor controller, an air-conditioner compressor, a PTC, an electric controller, a motor, wheels, a remote monitoring system, a vehicle control unit, a storage battery, an ignition switch, a combination meter, a vehicle body module controller, lamplight, a low-voltage power supply relay and a high-voltage power supply relay, wherein the low-voltage power supply relay and the high-voltage power supply relay work in cooperation with the other components. The system further comprises a high-voltage direct current bus and a low-voltage output circuit for connecting the other components. According to the pure electric vehicle electrical system, some new electrical systems and devices are added, an original low-voltage circuit is modified partially, and the independent wiring mode is adopted for the newly-added electrical system, so that the whole electrical system is reliable to use and easy and convenient to operate.

Classifications:

International (IPC 8-9): B60L1/00 B60L11/18 B60L15/00

CPC: Y02T10/70



Family:

Publication number	Publication date	Application number	Application date
CN106347169 A	20170125	CN201510424680	20150717

Priority:

CN201510424680 20150717

Probable Assignee: BEIJING INST TECHNOLOGY

Assignee(s): (std): BEIJING INST OF TECHNOLOGY ; BEIJING INST TECHNOLOGY

Inventor(s): (std): LIU PENG ; QU CHANGHUI ; WANG ZHENPO

5) Family number: 79166774 (CN11216568 A) © PatBase

Title: ELECTRIC VEHICLE ENERGY MANAGEMENT DEVICE AND METHOD BASED ON GATING CIRCULATION UNIT

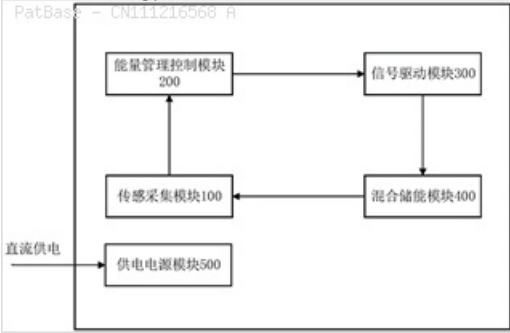
Abstract: The invention discloses a pure electric vehicle energy management device and method based on a gating circulation unit. The device comprises a sensing acquisition module, a control module, a hybrid energy storage circuit module, a signal driving module and a power supply module. The method comprises the following steps: 1, collecting voltage values and current values of a super capacitor and a lithium battery; 2, performing signal denoising and smoothing according to the voltage and current curves; 3, extracting time domain, frequency domain and time frequency characteristics from the voltage and current curves; 4, performing feature dimension reduction by using an automatic encoder; and 5, inputting the features after dimension reduction into a trained gating cycle unit model, predicting the power respectively required by the lithium battery and the super

capacitor at the future moment, and sending out a power control signal according to the predicted power to perform energy management. Compared with an existing energy management device, the energy management device is simple in circuit design, effectiveness and real-time performance of power distribution are good, and needed energy is saved.

Classifications:

International (IPC 8-9): B60L50/40 B60L50/60 B60L58/10

CPC: B60L50/40 B60L50/60 B60L58/10 Y02T10/70



Family:

Publication number	Publication date	Application number	Application date
CN111216568 A	20200602	CN202010104963	20200220

Priority:

CN202010104963 20200220

Probable Assignee: UNIV CENTRAL SOUTH

Assignee(s): (std): CENTRAL SOUTH UNIV ; UNIV CENTRAL SOUTH

Inventor(s): (std): DENG KUNYUAN ; HUANG ZHIWU ; JIANG FU ; LI HENG ; LIU WEIRONG ; LIU YONGJIE ; PENG JUN ; WU YUE ; YANG YINGZE ; ZHANG XIAOYONG

6) Family number: 9445125 (US5813487 A)

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Title: OMNIBUS

Abstract: An omnibus with steered front wheels as well as steered and driven rear wheels, the rear wheels being arranged in the region of a rear end of the omnibus such that wheel housings associated with the rear wheels are arranged essentially at the rear end and/or outside the passenger compartment. A particularly compact and economical drive is obtained due to fact that the drive for the rear wheels comprises an electric drive, wherein the rear wheels are driven by wheel hub motors free of slip and the wheel hub motors are designed as electric motors.

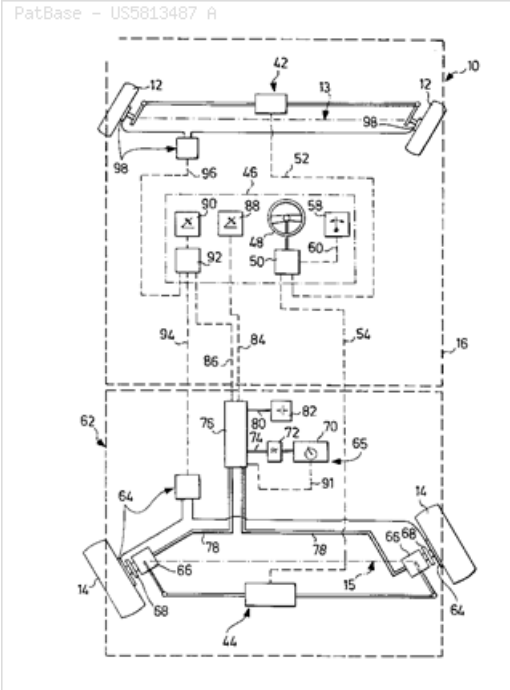
Classifications:

International (IPC 8-9): B60K1/00 B60K1/02 B60K5/00 B60K5/04 B60K6/00 B60K6/04 B60K6/28 B60K6/46 B60K7/00 B60W10/06 B60W10/08 B60W10/26 B60W20/00 B62D31/02 B62D47/00 B62D47/02 B62D7/14 B62D7/15

International (IPC 1-7): B60G5/00 B60K1/00 B60K41/00 B60K7/00 B60L11/02 B60L15/00 B62D31/02 B62D47/02 B62D5/00 B62D7/14 B62D7/15

CPC: B60G2300/14 B60K1/02 B60K17/34 B60K5/00 B60K5/04 B60K6/46 B60K7/0007 B60L15/2036 B60L2200/18 B60L50/62 B60W10/06 B60W10/08 B60W10/26 B60W20/00 B60Y2200/143 B60Y2200/1432 B62D47/02 B62D7/142 B62D7/159 Y02T10/62 Y02T10/64 Y02T10/70 Y02T10/7072 Y02T10/72

US: 180/412 180/65.1 180/65.245 180/65.27 180/65.28 180/65.285 180/65.29 180/65.3 180/65.5 903/925 903/940 903/941 903/942 903/943



Family:

Publication number	Publication date	Application number	Application date
CA2198888 AA	19970228	CA19952198888	19950901
CA2198888 C	20010227	CA19952198888	19950901
DE4431305 A1	19960307	DE19944431305	19940902
DE4431305 C2	20001123	DE19944431305	19940902
US5813487 A	19980929	US19970807252	19970228
WO9607558 A1	19960314	WO1995EP03441	19950901

Priority:

Probable Assignee: GOTTLOB AUWAERTER GMBH AND CO KG**Assignee(s):** (std): AUWAERTER GOTTLOB GMBH AND CO ; DAVID KARL HEINZ ; LEE ROBERT**Assignee(s):** GOTTLOB AUWAERTER GMBH ; GOTTLOB AUWAERTER GMBH AND CO ; GOTTLOB AUWAERTER GMBH AND CO 70567 STUTTGART DE ; GOTTLOB AUWAERTER GMBH AND CO KG ; GOTTLOB AUWAERTER GMBH ; GOTTLOB AUWAERTER GMBH AND CO ; NEOPLAN BUS GMBH**Inventor(s):** (std): DAVID KARL HEINZ ; LEE ROBERT**Agent(s):** GOWLING LAFLEUR HENDERSON LLP; GOWLING WLG CANADA LLP**Designated states:** AT BE CA CH DE DK ES FR GB GR IE IT JP LU MC NL PT SE US**7) Family number: 28220472** (US6237988 BA)

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Title: STREAMLINE ROOFTOP DECK FOR MOTORHOMES**Abstract:** A system of adjustable rooftop cowlings, folding safety handrails, hatchways, stairways, and furnishings affixed to the top of motorhomes.**Classifications:****International (IPC 8-9):** B60F3/00 B60K1/01 B60P3/32 B60P3/34**International (IPC 1-7):** B60F3/00 B60P3/32 B60P3/34**CPC:** B60J7/165 B60P3/34 B60F3/0007 B60F3/0038 B60F3/0092

B60G13/14 B60G2300/60 B60G2500/30 B60G2800/914 B60H1/00428

B60K6/26 B60K6/28 B60K6/32 B60K6/46 B60L2200/18 B60L2200/28

B60L2200/36 B60L2220/20 B60L2220/44 B60L2260/28 B60L50/40

B60L50/61 B60L50/66 B60L58/30 B60L58/34 B60L58/40 B60L8/00

B60L8/003 B60W10/06 B60W10/08 B60W20/00 B60W20/15

B60W2300/14 B60W2300/145 B60W2300/18 B60W2300/185 B62D35/001

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Y02T90/40 Y10S903/903

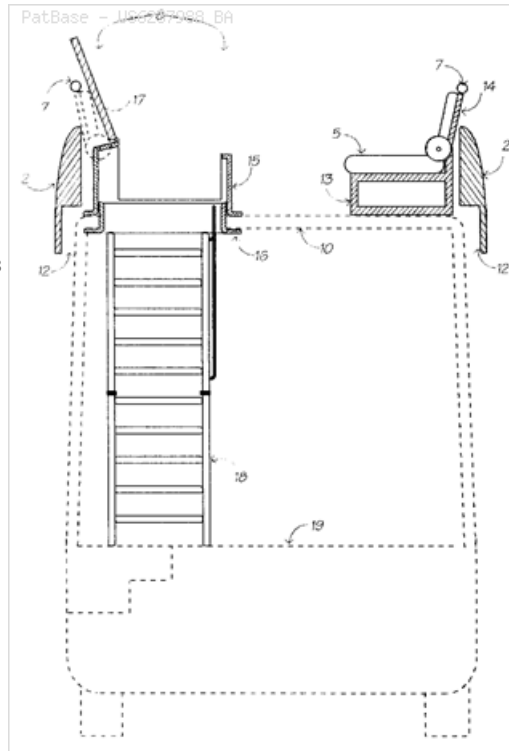
US: 114/290 114/61.15 114/61.16 180/65.22 180/65.4 180/65.5 180/65.8

257/E29.04 257/E29.128 257/E29.131 257/E29.133 257/E29.136

257/E29.26 296/156 296/156P 296/164 296/165 296/165P 296/175

296/197 296/210 296/26.06 296/26.09 296/26.14 440/12.5 440/12.52

52/79.5 903/903

**Family:**

Publication number	Publication date	Application number	Application date
US6237988 BA	20010529	US20000491764	20000127
US6425625 BA	20020730	US20010766996	20010123
US2002125736 AA	20020912	US20020142403	20020510
US2002153745 AA	20021024	US20020177314	20020624
US6679543 BB	20040120	US20020177314	20020624
US6840825 BA	20050111	US20030712227	20031114
US7338335 BA	20080304	US20050031263	20050106

Priority:

US19970929691 19970915	US20000491764 20000127	US20010766996 20010123
US20010766966 20010123	US20020142403 20020510	US20020177314 20020624
US20030712227 20031114	US20050031263 20050106	

Probable Assignee: MESSANO FRANK**Assignee(s):** (std): MESSANO FRANK**Assignee(s):** JPMORGAN CHASE BANK ; JPMORGAN CHASE BANK AS COLLATERAL AGENT ; JPMORGAN CHASE BANK NA ; WELLS FARGO BANK MINNESOTA NATIONAL ASSOCIATION AS**Inventor(s):** (std): MESSANO FRANK**Inventor(s):** FRANK MESSANO**8) Family number: 49400570** (US2011198137 AA)

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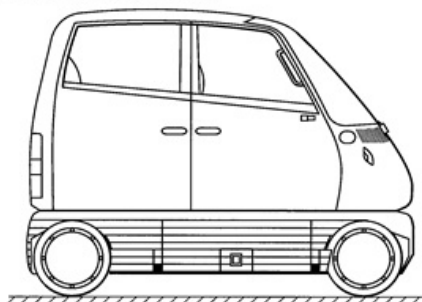
Title: ELECTRIC VEHICLES

Abstract: An electric vehicle includes a chassis and a compartment defined by the chassis. A power container houses at least one energy storage/generating device for powering the electric vehicle. The power container is insertable into and removable from the compartment through the left side and the right side of the chassis. A suspension apparatus includes a shaft, a control arm pivotably connected to the shaft, at least one helical torsion spring mounted on the shaft, and a linear actuator. Movement of the linear actuator increases bending stress on the at least one helical torsion spring and urges the control arm downwardly.

Classifications:

International (IPC 8-9): B60G3/01 B60G3/04 B60G9/00 B60K1/04 B60R16/04
CPC: B60G2200/144 B60G2300/13 B60G3/20 B60K1/04 B60K2001/0461 B60K2001/0494 B60L53/80 Y02T10/70 Y02T10/7072
US: 180/65.1 180/65.100P 180/68.5 280/124.11 280/124.110S 280/124.127 280/124.127S 280/124.135 280/124.135S

PatBase - US2011196137 HH



Family:

Publication number	Publication date	Application number	Application date
US2011198137 AA	20110818	US20100910928	20101025
US8256553 BB	20120904	US20100910928	20101025

Priority:

US20100305470P 20100217 US20100910928 20101025

Probable Assignee: DE PASCHOAL ROBERTO

Assignee(s): (std): DE PASCHOAL ROBERTO

Inventor(s): (std): DE PASCHOAL ROBERTO

Agent(s): SMITHS IP

9) Family number: 31451972 (US2005000739 AA)

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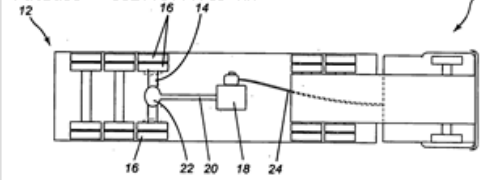
Title: MOTORIZED SEMI-TRAILER

Abstract: An improved tractor trailer having a tractor unit and a trailer unit and wherein the tractor unit includes an internal combustion engine, the improvement comprising an electrical drive arranged to drive at least some of the wheels on at least one of the axles of the trailer, in a control system associated therewith. The arrangement provides extra power for situations where it is required and can, in the case of electric drive motors mounted directly on the wheel, provide for better braking.

Classifications:

International (IPC 8-9): B60K1/00 B60K1/04 B60K6/00 B60K6/04 B60K6/28 B60K6/40 B60K6/48 B60K6/52 B62D53/00 B62D53/06 B62D59/00 B62D59/04
International (IPC 1-7): B60K1/00 B60K6/02 B62D53/00 B62D53/06 B62D59/04
CPC: B60K1/00 B60K1/04 B60K6/40 B60K6/48 B60K6/52 B60W2300/145 B60Y2200/147 B62D53/06 B62D59/04 Y02T10/62 B60K2001/0444 B60L2200/28 B60L2200/36 B60L2200/46 B60L7/10
US: 180/14.2 180/14.200P 180/14.3 180/65.2 180/65.25 180/65.250S 180/65.3 180/65.4 903/916 903/916S 903/951 903/951S

PatBase - US2005000739 AA



Family:

Publication number	Publication date	Application number	Application date
CA2418686 AA	20040807	CA20032418686	20030207
CA2457216 AA	20040807	CA20042457216	20040206
CA2457216 C	20110927	CA20042457216	20040206
US2005000739 AA	20050106	US20040771098	20040203
US7147070 BB	20061212	US20040771098	20040203

Priority:

CA20032418686 20030207 CA20032418686 20030702 US20040771098 20040203
CA20042457216 20040206

Probable Assignee: LECLERC GAETAN

Assignee(s): (std): LECLERC GAETAN

Inventor(s): (std): LECLERC GAETAN

Agent(s): ERIC; ERIC FINCHAM; FINCHAM ERIC