Boletín VT
COCHE ELÉCTRICO
1er trimestre 2010
1
Vigilancia Tecnológica

Coche Eléctrico: Estrategias previstas

En el último trimestre se han producido significativos avances relacionados con el impulso del vehículo eléctrico, tanto desde el Gobierno de España como desde la Oficina Española de Patentes y Marcas (OEPM).

Por un lado, el Gobierno de España presentó el pasado 6 de abril de 2010 la Estrategia Integral para el Impulso del Vehículo Eléctrico con el horizonte 2014 y un conjunto de medidas que se implementarán a través de un Plan de Acción en los próximos dos años para alcanzar los objetivos previstos en esta Estrategia.

La presentación de dicha Estrategia estuvo encabezada por el presidente del Ejecutivo, José Luis Rodríguez Zapatero, acompañado por la Vicepresidenta Segunda, Elena Salgado y por los ministros de Industria, Turismo y Comercio, Miguel Sebastián, y la titular de Ciencia e Innovación, Cristina Garmendia.

El vehículo eléctrico es una oportunidad industrial en un momento decisivo para el sector de la automoción, con implicaciones tecnológicas, energéticas y medioambientales. A modo de ejemplo, abrirá un campo pionero para el desarrollo de software para recarga de baterías y al desarrollo de las redes inteligentes (smart grid).

Asimismo, el ministro de Industria, Turismo y Comercio, Miguel Sebastián, presentó el pasado 9 de marzo de 2010 el Plan Estratégico de Promoción de la Propiedad Industrial, Plan Pi. El Plan se enmarca dentro de la Estrategia para una Economía Sostenible y pretende colocar a la Propiedad Industrial como factor de innovación, de competitividad y de crecimiento para el futuro de la economía española.

El Plan, cuyo horizonte temporal es de tres años, recoge cinco ejes estratégicos: estímulo de la Propiedad Industrial; internacionalización empresarial; protección y seguridad jurídica frente a la piratería; impulso de las tecnologías respetuosas con el medio ambiente; e incremento de la calidad y rentabilidad en la gestión empresarial.

En coherencia con la importancia alcanzada por nuestro país en las tecnologías relacionadas con la protección del medio ambiente y las energías renovables, el Plan PI prevé una actuación específica en este sector, PI Verde, para que las empresas españolas utilicen los instrumentos de protección de la Propiedad Industrial a fin de aumentar su competitividad.

En este sentido, el ministro anunció la elaboración de boletines trimestrales de seguimiento tecnológico, entre el que se encuentra el del coche eléctrico del que ahora presentamos el número 1.

En este número 1 se ha procurado recoger las aportaciones que se han recibido, relacionadas sobre todo con la inclusión de elementos relacionados con máquinas eléctricas, convertidores e inversores.

Con el ánimo de crecer un poco más con cada boletín, y agradeciendo los comentarios ya realizados, la OEPM continúa abierta a la recepción de nuevas ideas y sugerencias que hagan de este boletín una herramienta útil y práctica para todos los sectores implicados.

Solicitudes de Patente Publicadas

Los datos que aparecen en la tabla corresponden a una selección de las solicitudes de patentes publicadas durante el trimestre. Se puede acceder al documento completo haciendo doble clic sobre el mismo.

TECNOLOGÍAS VEHICULARES

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO

Baterías

WO2010030131 A2	LG CHEM LTD	Material anódico activo para uso en el electrodo del ánodo de una batería secundaria de litio utilizada como fuente de potencia de un vehículo híbrido eléctrico enchufable (PHEV), por ejemplo un coche, tiene una estructura cristalina en capas.
WO2010029263 A1	PEUGEOT CITROEN AUTOMOBILES SA	Método de control del dispositivo de termorregulación de batería de alimentación de potencia para vehículo de tracción eléctrico, implica determinar el flujo de fluido relativo a la temperatura de la batería, temperatura del fluido a la entrada de la batería y un determinado nivel de ruido.
WO2010023063 A1	BOSCH GMBH ROBERT	Módulo de batería para uso en un sistema de módulo de baterías, por ejemplo de un vehículo comercial o de pasajeros, tiene un elemento refrigerante suministrado con una extensión mayor y una mayor conductividad de calor en la dirección del eje X y el eje Y que en la dirección del eje Z.

...ver más

Supercondensadores

WO2010023664 A1	TECHNION RES & DEV FOUND LTD	Vehículo híbrido en serie, tiene un ultra-condensador para almacenar energía, y un sistema de gestión de energía para controlar en tiempo real el nivel de carga del ultra-condensador de acuerdo a la velocidad en tiempo real del vehículo.
WO2010001070 A1	PEUGEOT CITROEN AUTOMOBILES SA	Dispositivo de almacenamiento de energía eléctrica, por ejemplo para vehículo eléctrico, tiene batería conectada al bus de suministro de carga por un convertidor de corriente continua DC-DC para adaptar el nivel de voltaje del supercondensador al nivel de voltaje de la batería.
WO2010028162 A2	UNIV CALIFORNIA	Dispositivo de almacenamiento de carga, por ejemplo supercondensador, para suministrar energía y densidad de potencia, tiene un primer electrodo fabricado de al menos dos de las primeras capas dobles del supercondensador (DLS, double layer supercapacitor), del primer supercondensador electroquímico (ECS) y de los primeros materiales de la batería.

...ver más

Sistemas de recuperación de energía, p.ej. frenos regenerativos

WO2010010283 A2	RENAULT SAS	Método de frenado regenerativo para vehículos, por ejemplo, para vehículos eléctricos, implica aplicar la acción del frenado regenerativo al vehículo usando un dispositivo de frenado regenerativo, donde la intensidad de la acción de frenado depende de la velocidad del vehículo.
WO2010008716 A1	BOSCH GMBH ROBERT	Sistema de frenado hidráulico para uso en vehículos que emplea tanto frenado hidráulico como regenerativo, tiene una válvula de control que proporciona un impulso a la presión hidráulica del actuador del freno en rueda del vehículo en proporción al diferencial de la presión experimental y la hidráulica.
WO2009157891 A1	BAYERISCHE MOTOREN WERKE AG	Dispositivo de recuperación, por ejemplo, sistema de recuperación de energía, integrado en un método de operación de una transmisión de un vehículo híbrido, implica restaurar el coeficiente de engranaje más bajo del punto de referencia, y acelerar el motor no eléctrico a la limitación de velocidad de rotación más baja del motor.

...ver más

Máquinas eléctricas

WO2009153148 A1	ZF FRIEDRICHSHAFEN AG; PROTERRA LLC	Máquina eléctrica para uso en el grupo motor de un vehículo comercial híbrido, tiene una carcasa de estator diseñada como una pieza única con el flanco del cuello externo radial para afianzar al alojamiento híbrido y el alojamiento de la transmisión de la transmisión híbrida.
WO2010012923 A1	RENAULT SAS	Sistema de cierre del eje de salida del motor, por ejemplo motor eléctrico síncrono, para vehículos, tiene un dedo alineamiento que alinea el espacio entre dientes con dedo móvil, donde el dedo móvil se aloja en el espacio sin hueco circunferencial.
WO2010026158 A1	MICHELIN RECH & TECH SA; SOC TECHNOLOGIE MICHELIN; SOC TECHNOLOGIE MICHELIN SA	Montaje de máquina eléctrica síncrona para aplicación de tracción para uso a bordo de un vehículo, tiene grupo de ayuda magnética al esfuerzo de torsión mediante unidad de sujeción antirrotación que conecta una parte terminal y la pared interna del extremo tubular.

...ver más

Convertidores, inversores

WO2010032316 A1	MITSUBISHI ELECTRIC CORP	Convertidor de corriente continua DC-DC para vehículo eléctrico, tiene una unidad de control de amortiguación que calcula la cantidad de amortiguación durante la operación para ajustar el estado del filtro de alistamiento, basado en el voltaje del condensador.
WO2009150969 A1	TOYOTA JIDOSHA KK	Vehículo, por ejemplo vehículo híbrido, que tiene un aparato de control que controla la operación de los convertidores de voltaje, basado en la salida del voltaje de la batería, el voltaje requerido por los inversores y el voltaje requerido por la unidad receptora de potencia.
WO2010016426 A1	HITACHI AUTOMOTIVE SYSTEMS LTD; HITACHI LTD	Módulo de potencia, por ejemplo para vehículos híbridos, tiene elementos semiconductores de potencia y conductores de conexión en el substrato, de modo que los caminos de las mallas de corriente están formados sobre base metálica por el flujo de corriente eléctrica durante la conmutación el elemento semiconductor.

...ver más

INFRAESTRUCTURAS DE CARGA

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO

Recarga de baterías

WO2010023527 A2	MATSUSHITA ELECTRIC WORKS LTD; PANASONIC ELECTRIC WORKS CO LTD	Sistema de cable de conexión usado para cargar la batería de un vehículo eléctrico, tiene un cable de conexión que se bobina en una superficie circunferencial externa de un tambor a lo largo del plano perpendicular al eje rotatorio de la corriente.
WO2010003021 A3	GOLDMAN J; HILL D; HORTH J; PROTERRA LLC; WALKER M	Estación de carga para vehículos eléctricos, por ejemplo autobuses, que tiene apoyos para el colector que se proporcionan con tiras de guiado separadas con superficie conductora eléctrica para contactar con la zona conductora del punto de carga del vehículo.
WO2010031690 A2	ENBW ENERGIE BADEN WUERTTEMBERG AG	Medidor eléctrico portátil para la compra o suministro de electricidad en ubicaciones independientes a, por ejemplo, un coche eléctrico en una estación de carga, tiene unidad de señalización para indicar los datos con número de identificación y está conectado a un dispositivo de medida.

...ver más

Cambio de baterías

WO2010004192 A3	RENAULT SAS	Dispositivo de apertura y cierre de la bandeja de la batería para vehículos de motor eléctrico, contiene unidades de apertura y cierre que comprenden una barra móvil que se aloja en una hendidura del marco de la bandeja de la batería para el cierre o la apertura de la bandeja según el punto de conexión.
WO2010002698 A3	KAUFMAN J J	Sistema de reabastecimiento de energía eléctrica, por ejemplo para coches, comprende estaciones de servicio situadas dentro de un área geográfica que incluyen dispositivos automatizados de manejo de baterías, que extraen una batería de los vehículos eléctricos e introducen otra batería.

BATERÍAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010027278 A1	POWEREGGZ LTD	Method of crediting users in usage of commodity e.g. water heater, involves determining forbearance of user and crediting user based on calculated forbearance
WO2010026732 A1	PANASONIC CORP	Battery pack for e.g. notebook computer, has secondary battery, molded component for accommodating battery and temperature raise suppression layer between battery and inner surface of molded component, and block layer
WO2010026731 A1	PANASONIC CORP	Battery pack for e.g. notebook computer, has secondary battery, molded component for accommodating battery and foamable layer between battery and inner surface of molded component, and foamed to form foaming heat insulating layer
WO2010030955 A1	LOCKHEED MARTIN CORP	Rechargeable battery useful in cell phones, comprises first conductor, anode attached to first conductor, second conductor, cathode attached to second conductor, and electrolyte for transporting lithium ions between anode and cathode
WO2010028937 A1	APPLIED SWEEPERS LTD	Sweeping machine e.g. road sweeping machine, operating method for sweeping e.g. public highway, involves providing operator notification when remaining amount of energy falls below predetermined amount of estimation of amount of energy
WO2010023869 A1	PANASONIC CORP	Method of manufacturing secondary battery used in e.g. portable electronic device, involves welding electrode edge and current collection board by melting protrusion on collection board using arc discharge
WO2010024032 A1	SUMITOMO WIRING SYSTEMS LTD	Terminal metal fitting of cable for interconnecting battery, inverter and motor of electric vehicle, has strong crimping portions spaced apart and formed along cable axial direction by partially pressurizing cable connection portion
WO2010018814 A1	UBE IND LTD	Novel nitrile compound for non-aqueous electrolyte used for lithium cell
WO2010024304 A1	SUMITOMO CHEM CO LTD	Manufacture of electrode active material for sodium rechargeable battery, involves contacting aqueous solution and precipitant containing specific metal, mixing obtained deposit and sodium compound and baking mixture
WO2010026332 A1	ARKEMA FRANCE; ARKEMA FRANCE SA; CENT NAT RECH SCI; CNRS CENT NAT RECH SCI	Composite material for negative electrode of electrochemical device of e.g. lithium-ion battery, has conductive additive and binder, where additive is mixture of conductive additives containing carbon nanofibers and carbon nanotubes
WO2010021205 A1	SUMITOMO ELECTRIC IND LTD	Non-aqueous electrolyte battery used as power supply for, e.g. electric vehicles, has anode containing sintered compact obtained by baking powder containing anode active material, and coating layer containing anode active material
WO2010020491 A1	BEHR GMBH & CO	Cell housing for galvanic cell of battery of e.g. hybrid vehicle, has composite film provided with insulating layer and electrically conductive layer, where end section of composite film has bend to form insulation for conductive layer
WO2010019764 A2	JOHNSON CONTROLS SAFT ADVANCED POWER SOL	Battery module mounted in hybrid electric vehicle e.g. car, has seal provided between electrochemical cells and associated socket such that gases released from cells into chamber compress deformable portion of seal against cells
WO2010020727 A1	RENAULT SAS	Hybrid power train controlling system for e.g. hybrid propulsion motor vehicle, has weighting unit assigning variable coefficient to electric energy consumption, where coefficient is inversely proportional to charging state of battery
WO2010018066 A1	BEHR GMBH & CO	Galvanic element, useful e.g. in powering (hybrid) electric vehicles, has electrode assembly covered by high thermal conductivity film with region for connection to cooling device
WO2010016471 A1	HASHIMOTO KASEI KK; STELLA CHEMIFA CORP	Manufacture of phosphorus pentafluoride for hexafluorophosphoric acid salt, involves contacting carrier gas with raw material having phosphorus atom and fluorine atom, and extracting and separating phosphorus pentafluoride from gas
WO2010016472 A1	HASHIMOTO KASEI KK; STELLA CHEMIFA CORP	Manufacture of hexafluorophosphate used for electrolyte solution for electrical storage element, involves reacting phosphorus compound with metal fluoride
WO2010016475 A1	UBE IND LTD	Non-aqueous electrolyte used for lithium cell, contains specified amount of hydantoin compound, and is obtained by dissolving electrolytic salt in non-aqueous solvent
WO2010016520 A1	MITSUI CHEM INC	Non-aqueous electrolyte used for lithium secondary battery for notebook personal computer, contains unsaturated sulfone and complex oxide including transition metal such as manganese used as positive electrode active material
WO2010016661 A3	LG CHEM LTD; KANG J; KIM D	Battery cell balancing apparatus for e.g. portable electronic instrument, has cell balancing unit controlling balancing circuit corresponding to selected cell and balancing state of charge of battery cell

WO2010016727 A2	LG CHEM LTD	Preparation of gel polymer electrolyte secondary battery used in electronic devices, by coating polymerization initiator on battery case, and forming electrolyte by introducing gel polymer electrolyte composition and polymerizing
WO2010013467 A1	MITSUI CHEM INC	Resin composition used for films, comprises 4-methyl-1-pentene homopolymer, nucleating agent, and 4-methyl-1-pentene copolymer having structural units derived from 4-methyl-1-pentene and alpha-olefins other than 4-methyl-1-pentene
WO2010013837 A1	SUMITOMO CHEM CO LTD	Sodium rechargeable battery for, e.g. motor vehicle, comprises electrodes made of carbon material which satisfies specified conditions
WO2010015908 A1	NISSAN MOTOR CO LTD	Apparatus for drying electrode material used to form e.g. anode of lithium-ion secondary battery, reduces amount of heat applied to uncoated portions of electrode material on metal foil to be less than that applied to coated portions
WO2010019589 A2	GROSVENOR V	Lithium ion battery useful for electric vehicles, comprises lithium ion cell including electrode containing active material, porous electrolyte percolation additive and non-aqueous electrolyte in contact with the active material
WO2010013739 A1	DAIKIN IND LTD	Solvent used for electrolytic-salt dissolution in lithium secondary battery, comprises fluorine-containing ether, ester and/or linear carbonate, aromatic compound in which hydrogen is substituted with fluorine, and other carbonate
WO2010014332 A1	3M INNOVATIVE PROPERTIES CO	Lithium ion battery pack charging system comprises lithium ion battery pack with lithium ion cells connected with positive and negative terminals ; charger and charger controllers
WO2010017169 A1	BAKHTYARI F; DUBOIS B; EAVES S S; MODULAR ENERGY DEVICES INC	Thermal runaway suppression component for interposition between cells of multiple-cell battery pack e.g. for hybrid electric cars, comprises phase change material comprising water in hydrogel form, disposed in container
WO2010013102 A1	TOYOTA JIDOSHA KK	Control method of lithium ion secondary battery mounted in hybrid vehicle, involves charging the battery using predefined amount of electricity, when voltage of battery is decreased to preset lower limit battery voltage
WO2010013535 A1	AISIN AW CO LTD	Control system of rotary electric machine e.g. motor used in drive system of e.g. hybrid vehicle, sets control mode switching boundary in region in which power consumption of electric machine is not greater than boost-enabled power
WO2010013726 A1	ISHIHARA SANGYO KAISHA LTD	Electricity storage device used as power supply for e.g. electric vehicles, contains electrode material containing titanium dioxide obtained by heating hydrated titanium dioxide having surface coated with another metal hydroxide
WO2010010423 A1	CONTINENTAL AUTOMOTIVE GMBH	Automotive electrical device for automotive on-board electric power system mounted on vehicle e.g. automobile, has voltage follower diode with end connected to voltage clamping diode and another end connected to auxiliary interface
WO2010008026 A3	NEC TOKIN CORP; TOKIN CORP	Battery pack for battery powered applications, has protective circuit that controls charging and discharging of battery modules comprising unit cells
WO2010008058 A1	ASAHI GLASS CO LTD	Negative electrode composite used for nonaqueous electrolyte secondary battery e.g. lithium ion battery, contains electrode active material and binder including fibrillated polytetrafluoroethylene and non-crystalline polymer
WO2010007771 A1	MITSUBISHI ELECTRIC CORP	Power supply device for vehicle e.g. motor vehicle, has direct current (DC)/DC converter to step down rectifier voltage based on rotational speed of alternating current generating unit and amount of power supplied to electrical load
WO2010012322 A1	AMPHENOL TUCHEL ELECTRONICS GMBH	Electrical conductor i.e. non-insulated pipe, for e.g. parallelly connecting energy storage units in hybrid vehicle, has contacting terminals with positive pole terminal side made of aluminum and negative pole terminal side made of copper
WO2010011545 A1	BAXTER D; COULOMB TECHNOLOGIES INC; TORMEY M T	Charging station for charging e.g. electric battery powered vehicle, has latch allowing door to open beyond ajar position of door to allow cord to be removed during power loss in charging station while door is locked in closed position
WO2010007065 A1	BOSCH GMBH ROBERT	Method for operation of hybrid drive of vehicle, involves supplying energy from energy storage having power reserve to electric motor, and supplementing hybrid drive during operation of combustion engine
WO2010004918 A1	TONEN CHEM CORP	Microporous polymeric membrane for use in battery separator film of battery for use as power source for power tool and electric vehicle comprises surface having micro-fibrils with predetermined average diameter and average distance
WO2010003802 A1	MAHLE INT GMBH	Conditioning module for conditioning e.g. battery fluid at rest in fluid sump in motor vehicle, has pump creating fluid cycle of fluid to be conditioned between fluid sump, pump and conditioning device
WO2010004952 A1	DAIKIN IND LTD	Non-aqueous electrolyte solution for lithium secondary battery, comprises electrolyte salt and electrolyte salt-dissolving solvent containing fluorine-based solvent, non-fluorine cyclic carbonate and chain ester
WO2010005052 A2	ISHII MITOSHI	Method for managing storage battery e.g. lithium ion secondary battery in electric vehicle, involves installing storage battery exchange areas/storage battery replacement shelf apparatus along main roads at every preset distance

WO2010005097 A1	SUMITOMO CHEM CO LTD	Transition-metal phosphate for positive electrode active material for positive electrode for sodium rechargeable battery, contains sodium, phosphorus and transition-metal element, and has specified specific surface area
WO2010005095 A1	SUMITOMO CHEM CO LTD	Non-aqueous electrolyte secondary battery for e.g. portable electronic device, consists of positive electrode containing alkali metal-transition metal phosphate as active material, and negative electrode
WO2010001722 A2	TONEN CHEM CORP	Chill roll assembly for transferring heat from extrudate in production of microporous membrane useful as battery separator, comprises upstream and downstream rolls, each having specified external surface roughness
WO2010003069 A1	RHODE ISLAND HIGHER EDUCATION	Electrolyte for use in lithium ion battery, comprises specific lithium salt dissolved in mixture of solvent and low concentration of additives
WO2010001850 A1	DAIKIN IND LTD	Lithium secondary battery for hybrid vehicle, has negative electrode containing negative electrode active material comprising lithium titanate, non-aqueous electrolyte containing fluorine-type solvent, and positive electrode
WO2010002006 A1	SUMITOMO CHEM CO LTD	Sodium secondary battery for, e.g. vehicle, has separator that includes laminated porous film having heat resistant porous layer facing positive electrode side and porous film laminated on each other
WO2010002012 A1	SUMITOMO CHEM CO LTD	Sodium rechargeable battery for mobile telephone, has separator containing laminated porous film obtained by laminating heat-resistant porous layer and porous film, provided between anode and cathode, and electrolyte
WO2009158701 A1	COHEN K J	Reciprocal combustion engine for vehicles, has magnetic field producing component provided in cylindrically shaped piston, and magnetic field inducing component which is contained within engine block
WO2010002089 A1	LG CHEM LTD	Cylindrical lithium secondary battery for mobile telephone, consists of anode, cathode, non-aqueous electrolyte and current interruptive device having activating pressure in specified range
WO2010027451 A1	BODEN D P; HAMMOND GROUP INC; LOOSEMORE D V	Expander formulation used in battery paste for battery plate for lead-acid battery used in hybrid electric vehicles, comprises barium sulfate, elevated concentration of carbon and/or graphite, and organic material, preferably lignosulfonate
WO2009158226 A3	GM GLOBAL TECHNOLOGY OPERATIONS INC	Method for estimating capacity of rechargeable battery used in e.g. hybrid vehicle, involves calculating change in charging state of battery and net coulomb flow to determine battery capacity
WO2009157263 A1	SHARP KK	Lithium ion secondary battery for e.g. hybrid electric vehicle, has electrodes laminated through separator which is made of resin having softening point greater than that of resin constituting core bases of electrodes
WO2009152942 A1	JOHNSON CONTROLS HYBRID&RECYCLING GMBH	Housing useful in accumulator for hybrid vehicles, comprises degassing system, which is detachably disposed on housing bottom and has base body to be attached to the housing bottom of the accumulator, and guide arranged in the base body
WO2009153911 A1	MATSUSHITA DENKI SANGYO KK; PANASONIC CORP	Battery pack for hybrid car, has fuse that interrupts electric current at open circuit unit with respect to operating and non-operating state by changing open circuit unit into closed state with conductor
WO2009153962 A1	PANASONIC CORP	Manufacturing method of secondary battery for, e.g. electric vehicle, involves welding collector exposure elements with edge portions having low and high buckling strengths and current collection terminal boards under pressurization
WO2009154746 A3	BERDICHEVSKY E M; COLE P D; DUNLAY J J; TESLA MOTORS INC	Battery voltage misreporting diagnosing method for e.g. personal vehicle, involves generating error message if calculated battery charge state data differs from expected charge state data by predetermined amount
WO2009153914 A1	PANASONIC CORP; TESLA MOTORS INC	Battery e.g. lithium ion secondary battery for driving power supply of electric vehicle, has electrode whose edge is provided with exposed section that is welded with connection section on surface of current collection board
WO2009148239 A3	SK ENERGY CO LTD	Microporous polyolefin multilayer film preparing method for high-capacity/high-power secondary battery for hybrid vehicle, involves stretching sheet to be film that has specific range of thickness, shrinkage and melt fracture temperature
WO2009144543 A1	TOYOTA JIDOSHA KK	Producing an electrode plate for a lithium-ion secondary battery, comprises binding carbon bond active material particles and first conductive material, and forming electrode mix paste by mixing active material particles
WO2009150791 A1	MATSUSHITA DENKI SANGYO KK; PANASONIC CORP	Battery e.g. lithium ion secondary battery has insulating layer arranged between sealing board and gasket arranged between opening of battery case and sealing board
WO2010021211 A1	TOYOTA JIDOSHA KK	Lithium secondary battery mounted in e.g. hybrid car, has adhering portions, intermediate non-adhering portion and non-adhering portion that are formed at outer side of safety valve portion covered with protective resin film
WO2009149273 A1	A123 SYSTEMS INC	Method for determining state of charge of energy delivery device involves using predetermined profile that relates open circuit voltage of energy delivery device to state of charge of energy delivery device

WO2009149041 A1	MCGILL J C	Combustible fuel vehicle e.g. trailer truck, retro-fitting system for forming plug-in electric hybrid vehicle, has control module switching motor-generator unit between motor mode and generator mode based on determination result
WO2009146952 A1	BOSCH GMBH ROBERT	Energy storage unit for e.g. drilling tool, has active or passive components provided for parallel interconnection of cables for serially interconnected, identical storage elements, where each cable comprises two of storage
WO2010002084 A1	KOREA INST SCI&TECHNOLOGY	Negative electrode used for secondary battery used as power supply for hybrid electric vehicle, has negative active material which is web thin layer of belt-shaped metal oxide nanofiber provided on surface of current collector
WO2009152698 A1	UNIV CHONGQING; CHONGQING CHANGAN AUTOMOBILE CO LTD	Nickel-hydrogen power battery pack heat removal system for hybrid vehicle, has accumulator box whose upper and lower soleplates are fixed with support bar and battery support frame to fix and support accumulator box
WO2010030605 A2	JOHNSON CONTROLS SAFT ADVANCED POWER SOL	Battery module for vehicle including electric vehicles, hybrid electric vehicles, and plug-in hybrid electric vehicles comprises electrochemical cells and flat washers coupled to circuit board

SUPERCONDENSADORES

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010024654 A2	LG CHEM LTD	Battery e.g. lithium battery, leakage current detecting apparatus for use in battery driving apparatus of battery pack, has determination unit determining occurrence of current leakage by comparing leakage and insulation resistances
WO2010024327 A1	ZEON CORP	Electrode for lithium ion capacitor, has electrode layer provided on collector, and conductive adhesive layer containing carbon particles provided between electrode layer and collector
WO2010021076 A1	HITACHI CHEM CO LTD	Power supply device of vehicle e.g. hybrid vehicle has MOSFET switch control circuit that changes charging mode according to potential difference between capacitor and secondary battery and detected temperature of capacitor
WO2010018841 A1	ZEON CORP	Manufacture of electrode e.g. polarizing electrode for electrochemical elements e.g. electrical-double-layer capacitors, involves forming electrode layer by supplying electrically-charged electrode material on grounded collector temperature of capacitor
WO2010016568 A1	ZEON CORP	Binder for electrode of lithium ion capacitor, consists of (meth)acrylate polymer formed by polymerizing polymerizable monomer comprising (meth)acrylate, dibasic acid, and acrylonitrile
WO2010016567 A1	ZEON CORP	Electrode for lithium ion capacitor, has electrode composition layer comprising electrode active material, electroconductive material, carboxymethyl cellulose salt and (meth)acrylate polymer on collector
WO2010013487 A1	SHOWA DENKO KK	Manufacture of negative electrode layer for electrochemical capacitor, involves mixing mixture formed using lithium titanate, electroconductive auxiliary agent and fibrous carbon, crystalline activated carbon and binder and molding
WO2010004700 A1	PANASONIC CORP	Metallized film capacitor for, e.g. electronic device, has metal thin-film electrodes sequentially provided on surface of dielectric film
WO2009156101 A1	IMP GMBH; POLLERT GMBH	Device for generating electric energy, comprises ion cells such as lithium-ion accumulator, a unit for generating a magnetic field at the site of the ion cell, and a capacitor or an interconnection of two electrically connected capacitors

SISTEMAS DE RECUPERACIÓN DE ENERGÍA; FRENOS REGENERATIVOS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010025616 A1	CHEN M	Electricity generating device for e.g. traffic sign, has driver with restoring force to provide continuous unidirectional rotating torque to drive generator to output electrical energy when device is exerted by vehicle weight
WO2010024653 A2	LG CHEM LTD	Device for controlling switch unit between battery pack and load in battery management apparatus in hybrid electric vehicle, has memory for storing frequency, and control unit for equalizing sequence of turn-off of switch units
WO2010019291 A1	AIC BLAB CO; CLARKE R L; LEV F; RABINOVICH L	Method of reducing migration of electrolyte in bipolar lead acid battery, involves placing separator comprising electrolyte in gelled form, between positive and negative active materials of respective quasi-bipolar electrodes
WO2009156195 A2	SIEMENS AG	Device for braking vehicle, particularly rail traction vehicle, has synchronous motor that is separated from power supply as electric brake and is connected to brake resistor
WO2009149977 A1	BOSCH GMBH ROBERT	Brake device for motor vehicle, has two hydraulic brake circuits connected with brake actuation device, and two hydraulic brake circuits hydraulically decoupled from brake actuation device, and controlled by automatic control unit form, between positive and negative active materials of respective
WO2009149535 A1	DE SANTIS N M	Land mobile vehicle e.g. car, truck, bus, semi-trailer, tractor, motorbike, off-road vehicle, snowmobile has electric engine co-generated by fuel engine e.g. internal combustion engine that operates on alcohol e.g. ethanol and water system
WO2009150714 A1	TANAKA M; UMEMORI T	Regeneration type switched reluctance motor driving system for electric vehicle, has power supply device that charges or discharges direct current power using constant current flip flop circuit according to driving state of motor
WO2009150032 A1	BOSCH GMBH ROBERT	Brake device for motor vehicle, has control device for controlling brake effect of set of brake circuits and decelerating effect of set of effective units, and another set of brake circuits actuated directly through brake actuation device
WO2009149981 A1	BOSCH GMBH ROBERT	Braking device for motor vehicle, has two groups of brake circuits, which are designed as hydraulic brake circuits, where former brake circuit of former group is directly connected with brake pressure producing unit

MÁQUINAS ELÉCTRICAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010026159 A1	MICHELIN RECH & TECH SA; SOC TECHNOLOGIE MICHELIN; SOC TECHNOLOGIE MICHELIN SA	Resolver mounting device for triphase synchronous rotary electrical machine in on-board traction application of electric motor vehicle, has fixation unit maintaining angular position of resolver rotor when adjustment is made
WO2010020335 A3	MICHELIN RECH & TECH SA; SOC TECHNOLOGIE MICHELIN; SOC TECHNOLOGIE MICHELIN SA	Embedded-magnets internal six pole rotor for e.g. electric traction motor, of private passenger vehicle, has wedges extending axially beyond polar parts, where ends of wedges are narrowed and engaged in peripheral channel in side flanges
WO2010020545 A1	ZF FRIEDRICHSHAFEN AG	Method for preventing boiling of coolant for cooling electrical machine of motor vehicle, involves designing travel strategy of vehicle corresponding to stator temperature or coolant temperature of cooling jacket
WO2010017242 A1	FALLBROOK TECHNOLOGIES INC	Method of controlling prime mover and continuously variable transmission (CVT) of e.g. electric vehicles, involves disabling operation of prime mover and performing auto-zero routine on CVT
WO2010015446 A1	BOSCH GMBH ROBERT	Pressure pump device for hybrid vehicle, is driven by combustion engine with pressure accumulator and is driven by electrical drive, and pressure pump device has fixed speed variation device for decreasing and for increasing rotation
WO2010015888 A1	FCI	Method for unmating electrical connector assembly of electric motor for, e.g. electric vehicle, involves blocking connector unplugging operation after interlocking contacts are disconnected
WO2010015293 A2	MOTORENFABRIK HATZ GMBH & CO KG	Battery-operated electric vehicle e.g. passenger car, has auxiliary power unit with diesel engine that is designed for defined load point, where auxiliary power unit is mounted inside vehicle body in noise-reducing encapsulation
WO2010013533 A1	AISIN AW CO LTD	Control system of e.g. motor used for drive system mounted in e.g. electric vehicle, controls increase of voltage inputted to motor when power consumption of battery at time of rotation of motor exceeds preset power restriction value
WO2010012942 A3	RENAULT SAS	Power branching dual mode hybrid drive train controlling method for hybrid powered four-wheel drive vehicle, involves determining speed and torque of engine based on operation type of drive train, if required operation point is reached
WO2010010762 A1	HONDA MOTOR CO LTD	Power apparatus e.g. rotary machine for hybrid vehicle, has stator and two rotors such that ratio of number of armature magnetic poles in stator, magnetic poles and soft magnetic object of rotors is set to satisfy preset relationship
WO2010007123 A1	ZF FRIEDRICHSHAFEN AG	Rotor support for electric engine of hybrid drive train of motor vehicle, has toothing serving as ring gear of planetary gear mechanism, where rotor of engine is connected to ring gear
WO2010007950 A1	AISIN AW CO LTD	Stator for, e.g. three phase alternating current motor used for, e.g. hybrid car, has three-phase coil conductor that includes coil end conductor sections which are arranged in sides of stator core
WO2010007128 A1	ZF FRIEDRICHSHAFEN AG	Hybrid transmission for motor vehicle, has cooling medium flowing into hollow space for cooling electric motor, where hollow space is formed between stator socket and stator housing that surrounds stator socket radially outer side
WO2010007124 A1	ZF FRIEDRICHSHAFEN AG	Electrical machine cooling method for hybrid drive train of motor vehicle i.e. hybrid vehicle, involves cooling electrical machine using transmission oil which is utilized for cooling wet multi-disk clutch in hybrid assembly
WO2010004831 A1	HONDA MOTOR CO LTD	Power apparatus for use in driving of driving wheel of vehicle, has rotary machines whose respective stators are connected to each other, and respective rotors are connected to output portion of combustion engine, respectively
WO2010001698 A1	NTN CORP	Cycloid reduction gear for use in e.g. in-wheel motor drive device, has bearing load which is provided from output shaft and outer periphery engagement element is not shared by revolution element

WO2010001692 A1	TOYOTA JIDOSHA KK	Hybrid vehicle has hybrid electronic control unit that changes upper limit of voltage boosted by converter from first upper limit in eco mode to second upper limit when normal mode is selected by eco-switch
WO2009158674 A3	HILL D; MISENCIK S; MORRIS D; ONORATO S; PROTERRA LLC; WALKER M; WINKEL J	Heavy duty vehicle e.g. transit bus has lithium titanate battery power source with battery packs that are individually mounted into cavities of floor structure
WO2009157097 A1	TOKYO INST TECHNOLOGY; ONORATO S	Power supply device for permanent magnet motor used in vehicle, selects switch of polarity switching unit based on rotational position signal and converts output of pulse voltage generating unit into three-phase alternating current
WO2009157511 A1	SUMITOMO HEAVY IND LTD; SUMITOMO SHI CONSTR MACHINERY MFG CO LTD; ONORATO S	Hybrid type construction machine e.g. hydraulic shovel has engine that is accelerated by driving electric motor when load provided to engine is increased
WO2009154007 A1	TOSHIBA KK; PROTERRA LLC	Permanent magnet type rotary electric machine e.g. motor for hybrid vehicle, has short-circuit coils provided at flux path portions of high coercive force permanent magnet excluding low coercive force permanent magnets
WO2009153096 A2	BOSCH GMBH ROBERT; PROTERRA LLC	Electrical machine for use in hybrid vehicle, has cooling duct formed within integral profiled ring, and openings integrally formed on ring and are continuously connected to duct, where one opening is inlet and other opening is outlet
WO2009153150 A1	ZF FRIEDRICHSHAFEN AG; PROTERRA LLC	Device for producing and transmitting drive torque of electrical drive motor to e.g. countershaft of power train of vehicle, has rotor that is positioned in shaft such that support surface is present in range of maximum inclination
WO2009146976 A1	BOSCH GMBH ROBERT; PROTERRA LLC	Method for charge compensation of vehicle batteries, particularly lithium-ion batteries, involves identifying state of charge of individual cells, where one cell is discharged to calculated quantity of charge during operation of vehicle
WO2009036211 A3	HYDRO GEAR LP; WINKEL J	Control system for electric drive system of utility vehicle e.g. mower, has slave and auxiliary controllers that control slave and auxiliary electric motors based on signals generated according to acceleration and direction set by user
WO2010012149 A1	WUXI KIPOR POWER CO LTD	Water-cooled motor for electric vehicle, has cooling water cavity arranged between motor chassis and stator iron core, that is connected with water inlet and water outlet on motor chassis
WO2010026984 A1	TOYOTA CHUO KENKYUSHO KK (TOYT) TOYOTA JIDOSHA KK	Powder for powder magnetic core, has insulating layer having polymer resin insulating layer containing vinylsilane and hydrosilane as surface layer of powder, formed on particle surface of magnetic powder
WO2010022679 A1	BYD CO LTD	Hybrid power drive system for hybrid power automobile, has energy storage device electrically coupled to pair of motors for storing and supplying energy to motors
WO2010024455 A1	HAYASHI A K (TAMA-N) TAMA-TLO LTD	Hybrid vehicle has one of two compressed air storage units to hold compressed air to be supplied to turbine type air engine, while other compressed air storage unit is connected to air compression unit which connects turbine
WO2010024429 A2	AISIN AW CO LTD	Hybrid drive device for front engine front drive vehicle, has output shaft for transmitting rotation of output gear to driving wheel, and control device provided on side of output gear, and motor-generator that is opposite to input shaft
WO2010023091 A1	BOSCH GMBH ROBERT	Method for controlling drive train of hybrid vehicle, involves compensating changes in torque contribution of internal combustion engine, which is resulted from correction by controlled altering of torque contribution of drive motor
WO2010026157 A2	MICHELIN RECH & TECH SA; SOC TECHNOLOGIE MICHELIN; SOC TECHNOLOGIE MICHELIN SA	Synchronous electric machine for motor vehicle, has space defined between external and internal radial surfaces of flange element and lateral wall, respectively, to allow direct passage of conductors toward opening outside tubular piece

CONVERTIDORES, INVERSORES

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010030957 A1	EETREX INC	Bidirectional inverter charger for e.g. plug-in hybrid electric vehicle, electric vehicle, has buck circuit which provides full wave rectified signal waveform to H-bridge rectifier that ties AC voltage waveform to AC voltage source
WO2010010826 A1	NIPPON JIDOSHA BUHIN SOGO; NIPPON SOKEN INC; TOYOTA JIDOSHA KK	Heat exchanger for cooling semiconductor element in inverter for driving motor in hybrid vehicle, has multiple protrusions provided in one or both of upper and lower plates in state of projecting in flow path
WO2009157485 A1	SUMITOMO HEAVY IND LTD; SUMITOMO KENKI KK; SUMITOMO SHI CONSTR MACHINERY MFG CO LTD	Hybrid type working machine e.g. hybrid type construction machine, has buck boost converter that is provided between direct current bus and condenser used for delivering and receiving electric power among inverters
WO2009151077 A1	SUMCO CORP	Method for manufacturing silicon monocrystal wafer for insulated gate bipolar transistor (IGBT) for inverter used in electric train, involves performing precipitation heat treatment process to wafer
WO2009157330 A1	SANKEN DENKI KK; SANKEN ELECTRIC CO LTD; UNIV SHIMANE; UNIV SHIMANE NAT CORP	Direct current (DC) - DC converter used for electric vehicle, has secondary switch which is turned ON so that primary switch is turned-OFF and primary switch is turned ON so that secondary switch is turned-OFF
WO2009149769 A3	BARROSO TAVARES M; TAVARES M B	Electrical energy producing system for propulsion of e.g. semi-electric automobile, has generators producing renewable electrical energy that passes through rectifiers and stored in batteries that are charged using energy provider
WO2009157329 A1	SANKEN DENKI KK; SANKEN ELECTRIC CO LTD; UNIV SHIMANE; UNIV SHIMANE NAT CORP	Direct current-direct current converter for electric vehicle, has series circuits that include reactors, transformer windings, diodes, and smoothing capacitors, and switches that are turned ON alternatively for every time period
WO2010013343 A1	MITSUBISHI ELECTRIC CORP	Control apparatus of alternating current electric vehicle, has converter control unit that is divided into several arithmetic processing blocks to calculate reference voltage for pulse width modulation (PWM) converter

RECARGA DE BATERÍAS

Nº PUBLICACIÓN	SOLICITANTE	CONTENIDO TÉCNICO
WO2010031687 A1	ENBW ENERGIE BADEN WUERTTEMBERG AG	Method for location-independent power supply and/or power input to electric vehicle, involves transmitting power quantity obtained from storage and consuming unit to validation server at current filling station by communication connection
WO2010026930 A1	TOYOTA CHUO KENKYUSHO KK (TOYT) TOYOTA JIDOSHA KK	State estimation apparatus of secondary battery for electric power system of e.g. hybrid vehicle, estimates capacity deterioration parameter based on state of charge and actual and estimated battery current
WO2010029356 A1	RICARDO UK LTD	Apparatus for balancing connected cells within battery pack used in e.g. hybrid vehicle, has processors that are programmed to open set of switches, so as to charge cells of modules, when processors are connected to battery pack
WO2010024100 A1	TOYOTA JIDOSHA KK	Assembled battery for use in vehicle e.g. car, has bypass circuit with varistor that is connected in parallel with secondary batteries and Zener diode of another bypass circuit
WO2010025101 A2	ARAD Y	Motion assistance apparatus for composite vehicle system, has handle, coupled to housing, which can be connected to the motor vehicle to which motion assistance is to be provided
WO2010018597 A3	KPIT CUMMINS INFOSYSTEMS LTD	Battery pack i.e. lithium ion battery pack, equalization apparatus for e.g. laptop, has conducting unit connecting apparatus in circuit for enabling equalization of battery pack using current drawn from auxiliary energy source
WO2010027183 A2	KOREA ADV INST SCI & TECHNOLOGY	Transportation system, has electro-mobile comprising current collector having connection persistence part, and connection unit whose one side of triangle section is contacted with one side of triangle section of feeder
WO2010016275 A9	PANASONIC CORP	Control method of lead acid battery for electric power system of vehicle, involves setting ratio of integrated charge capacity and integrated discharge capacity in one area to be larger than that of in other area
WO2010013395 A1	MATSUSHITA DENKI SANGYO KK; PANASONIC CORP	Imbalance reduction circuit of power supply device mounted on vehicles e.g. electric vehicle, performs equalization process by discharge unit when temperature relevant information satisfies low temperature condition
WO2010010662 A1	MATSUSHITA DENKI SANGYO KK; PANASONIC CORP	Imbalance identifying circuit for electric power system for e.g. plug-in hybrid car, determines imbalance of amount of electrical storage when differences between voltage variations in electrical-storage elements exceed threshold value
WO2010009502 A1	DIUS COMPUTING PTY LTD	Authentication and/or energy auditing system for car in shopping centre's carpark, has microprocessor activating contactor to electrically connect management device to power grid upon authentic and authorized determination
WO2010012924 A2	RENAULT SAS	Electrical traction chain for motor vehicle, has three phase mains voltage system connected to stator coils of motor for permitting recharging of battery through inverter, where power supply of rotor of motor is cut during recharging phases
WO2010011458 A2	GENERAL ELECTRIC CO	Controlling method for a power transfer rate into and out of a e.g. hybrid vehicle by adjusting the power transfer rate based on an estimated duration of a future power transfer opportunity forming part of the vehicle mission
WO2010003711 A1	SIEMENS AG	Adapter device i.e. power efficient charging adapter, for e.g. charging energy storage of vehicle, has charging control unit for charging energy storage of vehicle in charging plan controllable manner
WO2009156696 A3	PEUGEOT CITROEN AUTOMOBILES SA	Electrical energy storage system recharging device for e.g. hybrid vehicle, has control unit arranged between converter and pack of ultra-capacitors to control charging current of pack of ultra-capacitors (Hybrid Patent)
WO2009147809 A1	MATSUSHITA DENKI SANGYO KK; PANASONIC CORP	Electrical storage imbalance identifying circuit for, e.g. lithium ion secondary battery, uses voltage gradient information corresponding to voltages of terminals of several electrical-storage elements to identify imbalance condition
WO2009145664 A1	DANIELYAN M I	Power supply comprising DC-DC converter with switch element having control block that regulates the switching frequency
WO2010022643 A1	CHERY AUTOMOBILE CO LTD; SAIC CHERY AUTOMOBILE CO LTD	Intellectualized equalizing charge method for electrokinetic cell of hybrid vehicle, involves unceasingly charging electrokinetic cell with low current, and controlling charging time within safety time

WO2010003366 A1	CHERY AUTOMOBILE CO LTD; SAIC CHERY AUTOMOBILE CO LTD	High voltage output monitoring device for power cell, has monitoring module monitoring high voltage output and pre-charging and switching times of relay, and control module controlling relay switch