

1. Method for producing thermoplastic foam panels by means of at least two heating elements offset in parallel with each other

Date: 2018-06-19 | ID: 10000014

Abstract: The present invention relates to a process for the production of at least two-layer thermoplastic foam sheets via thermal welding of at least two thinner thermoplastic foam sheets. In the process of the invention, at least two heating elements are conducted on mutually offset planes between the surfaces to be welded of the thinner thermoplastic foam sheets, and the foam sheets here do not touch the heating elements. The number of layers of the thermoplastic foam sheet is per se a result of the number of thinner thermoplastic foam sheets that are thermally welded to one another. If by way of example three thinner thermoplastic foam sheets are thermally welded to one another, a three-layer thermoplastic foam sheet is per se obtained, and if there are four thinner thermoplastic foam sheets the result is accordingly per se a four-layer thermoplastic foam sheet.

2. Connection structure of column and beam and method for connecting column and beam

Date: 2018-06-19 | ID: 10000919

Abstract: A pair of outer diaphragms (3a), (3b) is connected to a column (5). The outer diaphragms (3a) and (3b) include female screws (15) formed in a direction so as to be put between an end plate (13a) and the column (5). The end plate (13a) is connected by welding to the end faces of an upper flange part (11a), a lower flange part (11b), and the web of a beam (9a). On upper and lower projecting parts of the end plate (13a), bolt holes 17 are formed at the positions that correspond to the female screws (15) of the outer diaphragms (3a) and (3b). The bolts (7), which are in a direction parallel to the longitudinal direction of the beam (9a), connect the end plate (13a) to the outer diaphragms (3a) and (3b).

3. Coolant penetrating cold-end pressure vessel

Date: 2018-06-19 | ID: 10001079

Abstract: An improvement is provided to a pressurized close-cycle machine that has a cold-end pressure vessel and is of the type having a piston undergoing reciprocating linear motion within a cylinder containing a working fluid heated by conduction through a heater head by heat from an external thermal source. The improvement includes a heat exchanger for cooling the working fluid, where the heat exchanger is disposed within the cold-end pressure vessel. The heater head may be directly coupled to the cold-end pressure vessel by welding or other methods. A coolant tube is used to convey coolant through the heat exchanger.

4. Interactive routing of connections in circuit using auto welding and auto cloning

Date: 2018-06-19 | ID: 10002224

Abstract: Embodiments relate to an interactive routing of connections in a circuit wherein the connections associated with an initial pin of a circuit element (e.g., a row of FinFETs) are replicated in association with at least one other pin of the same circuit element or a different circuit element in the circuit. Replication of connections is performed intelligently by taking into account mapping of pins as well as imposing design rules or other restrictions on the circuit. The connections are in the form of trunks and branches, and are displayed as user inputs are received. A digital representation of the circuit with the connections as displayed is also generated. At least some of the connections in the circuit are replicated without individual user inputs based on user inputs associated with a connection to the initial pin.

5. Laser beam welding diagnosis apparatus and laser beam welding diagnosis method

Date: 2018-06-19 | ID: 10002418

Abstract: A laser beam welding diagnosis apparatus includes: an imaging unit configured to capture images of a laser beam welding penetration side of a laser beam welded portion at a predetermined time interval; a feature amount calculating unit configured to calculate, from an image captured by the imaging unit, a feature amount of a jetted portion accompanying laser beam welding penetration; a welding diagnosis unit configured to determine that a welding defect in the laser beam welded portion has occurred when values of the feature amounts of a predetermined area around the laser beam welded portion on the laser beam welding penetration side become equal to or less than a predetermined value for a predetermined duration or longer; and an output unit configured to output a welding quality state including the occurrence of the welding defect.

6. Electric storage device and method for producing electric storage device

Date: 2018-06-19 | ID: 10003067

Abstract: At least a connector of a current collecting member that is welded to an electrode plate of an electrode assembly is constituted by a rolled material, and the current collecting member and the electrode assembly are bonded to each other by vibration welding.

7. End effector structure for stapling apparatus

Date: 2018-06-26 | ID: 10004552

Abstract: An end effector structure (e.g. jaws structure or similar), configured with an internal antenna for delivery of electromagnetic energy in microwave range to a straight, curved or circular end effector structure in which the portion of end effector structure includes a microwave absorbing material that absorbs microwave energy emitted by the antenna and transfers microwave energy into the heat. Such end-effector also includes surgical fasteners or staples for strengthening tissue, providing a hemostasis, tissue joint and/or

welding. The microwave antenna is connected by a coaxial cable with a microwave generator. The heat generated in the microwave absorbing material is applied to the treated material (e.g. tissue) by means of capturing material in the end effector (jaw structure) and heating the tissue to the desired temperature either before, during or after a stapling procedure.

8. Chuck device and robot for changing welding tip and nozzle

Date: 2018-06-26 | ID: 10005148

Abstract: A chuck device capable of efficiently changing a welding tip and nozzle. The chuck device includes a rotatable chuck base, an engagement part fixed to the chuck base so as to rotate integrally with the chuck base and can engage an engagement surface of the welding tip, the engagement part allowing the welding tip to rotate with the chuck base when the chuck base is rotated while engaged with the engagement surface, and a plurality of fingers provided to the chuck base to be openable and closable and can hold the welding tip and the nozzle, the plurality of fingers being capable of moving in directions approaching and separating from the engagement part.

9. Capacitor-type welding device and capacitor-type welding method

Date: 2018-06-26 | ID: 10005149

Abstract: An economical capacitor-type welding device and capacitor-type welding method that have a small power loss, that can be made compact, and that reliably control a charging circuit without being affected by the inductance of a charging path. In an exemplary capacitor-type welding device and an exemplary capacitor-type welding method of the invention, a bypass switching element having a forward-blocking function is connected in parallel to output terminals of a charging circuit, and the bypass switching element is brought into a conduction state to allow a backflow current, which is caused to flow by a magnetic energy stored in the inductance of a primary winding or an inductor included in the charging path, to bypass the charging circuit. A discharge switching element is brought into a conduction state after the bypass switching element enters the non-conduction state and recovers the forward-blocking function.

10. Friction stir welding method for steel sheets and method of manufacturing joint

Date: 2018-06-26 | ID: 10005151

Abstract: A friction stir welding method for steel sheets includes inserting a rotating tool into an unwelded portion where two or more steel sheets are overlapped or butted together; moving the rotating tool along portions to be welded while rotating the tool so that a softened portion is formed in the steel sheets by friction heat generated between the rotating tool and the steel sheets, and the steel sheets are welded together by utilizing a plastic flow generated by the softened portion being stirred; and preheating the unwelded portion

before welding by the rotating tool by a pair of heating devices disposed over and under the unwelded portion and ahead of the rotating tool in the advancing direction to enable high speed welding without the risk of generation of welding defects and damage to the welding tool.

11. Laser beam welding apparatus and laser beam welding method

Date: 2018-06-26 | ID: 10005153

Abstract: Provided is a laser beam welding apparatus capable of correctly detecting the beginning and the end of one welding point even in remote laser beam welding. The laser beam welding apparatus includes a head which irradiates a workpiece with a laser beam, an optical receiver which receives a reflected light of the laser beam from the workpiece, and a controller. The optical receiver receives only a laser beam and a plasma of the reflected light. The controller determines that one welding point begins when a time during which intensity of the reflected light is larger than or equal to a second set-intensity is longer than or equal to a first set-time, and determines that the one welding point ends when a time during which the intensity of the reflected light is smaller than or equal to a first set-intensity is longer than or equal to a second set-time.

12. Laser welding apparatus and laser welding method

Date: 2018-06-26 | ID: 10005156

Abstract: A laser welding apparatus generates laser by a laser oscillator, converges the laser by a condenser lens, and applies the laser to an upper sheet and a lower sheet superposed together so as to weld the upper sheet and the lower sheet to each other. According to this apparatus, by laser irradiation, a melt pool Y is formed in the upper sheet and the lower sheet superposed together. Furthermore, by laser irradiation, the melt pool Y is caused to flow, and the upper sheet and the lower sheet are welded together.

13. Large transmission gearwheel and process for producing a large transmission gearwheel

Date: 2018-06-26 | ID: 10005161

Abstract: The invention relates to a process for producing a large transmission gearwheel (1; 31; 36) consisting of a plurality of individual components, said process comprising the successive steps of: providing the individual components, which include at least one hub (2; 32; 37), a disc wheel (3, 4; 18, 19; 22; 24; 27; 33, 34; 38, 39) and a toothed ring (5; 20; 21; 23; 26; 35; 40) produced from case-hardened steel; at least partially mechanically soft machining the individual components; joining the individual components using a beam welding process; case hardening the individual components which have been joined to one another, and hard machining at least the toothed ring (5; 20; 21; 23; 26; 35; 40). The invention furthermore relates to a large transmission gearwheel produced by such a process.

14. Method of manufacturing contoured objects by radio frequency welding and tooling assembly for same

Date: 2018-06-26 | ID: 10005231

Abstract: A method includes compressing a non-dielectric, elastically-deformable component, a wire mesh component, and a dielectric, contoured object between first and second forming tools. Once the components are compressed, radio frequency energy is supplied to the first forming tool, thereby causing a radio frequency electromagnetic field to be generated between the first forming tool and the wire mesh component that results in a contoured weld of the contoured object. A tooling assembly is configured to carry out the method.

15. Assembled house

Date: 2018-06-26 | ID: 10006212

Abstract: An assembled house has a house framework, a roof framework, wall panels and a roof panel. The house framework has multiple beams, columns, and connectors. The roof framework has multiple rafters. Each one of the connectors is mounted securely in the column, and has multiple screw sleeves mounted securely in a concrete body. Thus, the beam can be connected securely to the column by screws screwed into the screw sleeve of the connector. Welding is not required for assembling the house framework on the site of the assembled house, thereby effectively accelerating the assembling. In addition, the beams and the columns are connected without welding, which eliminates the problem that the welded portions may easily rust. Furthermore, the columns, rafters, and the beams are hollow tubes, which can effectively lower the weight of the whole assembled house.

16. Clamping assembly for attaching a grounding conductor to a pipe having a protective coating

Date: 2018-06-26 | ID: 10008785

Abstract: A clamping assembly for attaching a grounding conductor to a pipe having a protective coating includes an elongate conductive strap and a clamp. The conductive strap is sufficiently long to circumferentially surround the pipe and has longitudinally spaced sharp projections that are sufficient to penetrate the protective coating around the pipe to make an electrical coupling between the strap and a conductive part of the pipe beneath the protective coating. The clamp is coupled to the grounding conductor and clamps the conductive strap to the pipe at a tension sufficient to maintain an electrical connection between the conductive part of the pipe and the grounding conductor without the need for any welding of the grounding conductor to the pipe and without the need for any stripping of the protective coating from the pipe.

17. Spark plug electrode, method for its production, and spark plug

Date: 2018-06-26 | ID: 10008832

Abstract: A spark plug electrode having greater mechanical stability. The spark plug electrode includes a base body and a noble metal pin situated on the base body, the base body and the noble metal pin being connected to each other by a connection zone. The connection zone has at least one first welding seam and one second welding seam.

18. Iron-type golf club head with elevated weight bar and stress-relieving structures

Date: 2018-07-03 | ID: 10010771

Abstract: A golf club head comprising a body, an elevated weight bar, and at least one stiffening member is disclosed herein. The elevated weight bar is disposed within a hollow cavity portion of the body and bridges at least a portion of a bottom section of the body, and the at least one stiffening member is also disposed within the hollow cavity portion, extending from a top line section to bottom section of the body and passing through the elevated weight bar without making contact with the elevated weight bar. The elevated weight bar, which is preferably composed of a higher density material than that of the body, may be formed separately from the rest of the body and then affixed to the body by welding or a mechanical fastener.

19. Device for connecting structural components, in particularly by means of direct screwing, especially flow hole screwing, or by means of friction welding, and method for connecting structural components, in particular by means of direct screwing or friction welding

Date: 2018-07-03 | ID: 10010928

Abstract: A device for direct screwing, in particular flow hole screwing, or friction welding includes a guide element extending in an axial direction and being formed in particular as a guide pipe. A driveshaft is movable in the axial direction, disposed within the guide element and driven by a rotary drive. A feed drive is disposed and constructed to generate a feed movement and feed force transmitted to the driveshaft, which is achieved by a feed unit. During the process, depending on a process parameter, a switchover is made from a high feed force to a reduced feed force (flow hole screwing) or to a higher feed force (friction welding). In order to enable the most compact and weight-saving embodiment possible, the feed unit is disposed coaxially to the driveshaft within the guide element and transmits the feed force to the driveshaft in the axial direction and centrally.

20. Welding system and communication method for welding system

Date: 2018-07-03 | ID: 10010960

Abstract: A welding system performs communication accurately without provision of a control line between a welding power supply device and a wire feeding device. The welding system includes a welding power supply device, a wire feeding device, a welding torch, and power cables for supplying welding power from the welding power supply device to the welding torch. The system also includes power transfer lines for supplying power for driving a feeding motor disposed in the wire feeding device, so that the welding power supply device and the wire feeding device perform communication via the power transfer lines. The power transfer lines have less superimposed noise compared to the power cables. Accordingly, communication can be performed more accurately than in the case of performing communication via the power cables.

21. Multiple arc welding system controls and methods

Date: 2018-07-03 | ID: 10010961

Abstract: Multiple arc welding systems are provided, along with welding system controllers and control methods, in which a single user selected system setpoint value is used to derive individual machine setpoints for a plurality of welding machines in the multiple arc welding system.

22. Module and system for controlling and recording welding data, and welding wire feeder

Date: 2018-07-03 | ID: 10010962

Abstract: A module for controlling welding parameters and a method for operating a welding wire feeder is disclosed, with the feeder having a motor, a feeding wheel driven by the motor, a control which controls operation of the motor, an operator interface adapted for allowing an operator to input data which is being used by the control.

23. Mount for a welding gun for connecting said welding gun to an arm of a welding robot

Date: 2018-07-03 | ID: 10010964

Abstract: A mount for connecting a welding gun to a welding robot's arm. An articulated joint is provided between two rigid elements of the mount. The joint includes a sleeve securable to a first element. A first bore is provided on the second element. The sleeve is inserted into the bore. The bore's inner diameter and the sleeve's outer diameter allow the second element to turn with the first bore relative to the sleeve. An expansion element provided in the interior of the sleeve is displaceable in the longitudinal direction of the sleeve. The expansion element has a central opening through which a tensioning bolt is passed. The bolt threadably engages a support element causing expansion of the sleeve, thereby causing the sleeve to seize around the circumference thereof in the bore. The expansion and seizing of the sleeve is neutralized by a release and stop.

24. Electrode for resistance spot welding of dissimilar metals

Date: 2018-07-03 | ID: 10010966

Abstract: A method of spot welding a workpiece stack-up that includes a steel workpiece and an aluminum alloy workpiece involves passing an electrical current through the workpieces and between welding electrodes that are constructed to affect the current density of the electrical current. The welding electrodes, more specifically, are constructed to render the density of the electrical current greater in the steel workpiece than in the aluminum alloy workpiece. This difference in current densities can be accomplished by passing, at least initially, the electrical current between a weld face of the welding electrode in contact with the steel workpiece and a perimeter region of a weld face of the welding electrode in contact with the aluminum alloy workpiece.

25. Friction stir welding tool comprising a retractable guide member and a welding process

Date: 2018-07-03 | ID: 10010968

Abstract: A friction stir welding tool with a base, a rotating friction stir slug mounted in the said base and at least one guide member connected to the said base, the welding tool being adapted to move from upstream to downstream; a welding tool having at least one displacement member of the guide member relative to the said base between at least one guiding position in which the guide member extends in a scout area located downstream and facing the friction stir slug and at least one retracted position in which the guide member is offset from the said scout area.

26. Shaped welding

Date: 2018-07-03 | ID: 10010969

Abstract: A method for friction welding, the method comprising: locating a first workpiece in a recess or aperture of a first tool; bringing a weld face of the first and a weld face of a second workpiece into frictional engagement; and moving the first tool and the second workpiece relative to one another.

27. Fabrication of pipe strings using friction stir welding

Date: 2018-07-03 | ID: 10010970

Abstract: A method of fabrication by friction stir welding (FSW) at an interface between adjoining components such as pipe lengths of a pipeline has layers of different metals on each side. FSW is performed from one side of the adjoining components by effecting relative movement of a first FSW tool along the interface. FSW is performed from an opposite side of the adjoining components by effecting relative movement of a second FSW tool along the interface. Advantageously, FSW is performed simultaneously from both sides of the adjoining components with the FSW tools applying loads in mutual opposition about the adjoining

components.

28. Welding method, welding device, and method for manufacturing battery

Date: 2018-07-03 | ID: 10010974

Abstract: Disclosed is a technique for quickly detecting a defect of a portion welded by laser beam welding. Specifically disclosed is a welding step in which a welding device is used, the welding device welding an object to be welded with a pulsed laser. In the welding step, a first photodetector receives only infrared rays having a wavelength allowing detection of a keyhole formed in a molten pool from among infrared rays radiating from a welded portion during the welding of the object, and an analyzer determines quality of the welded portion on the basis of intensity of the infrared rays received by the first photodetector.

29. Laser welding head and process

Date: 2018-07-03 | ID: 10010976

Abstract: A laser welding head is configured to fasten under a focusing lens for focusing the laser and including at least one annular nozzle for injecting a protective gas, and a protective chamber for protecting the focusing lens with a transverse flow of air. The annular nozzle is arranged around an unobstructed optical axis passing through the laser welding head. The chamber for protecting the focusing lens with a transverse flow of air includes air admission and air exhaust in register with the air admission in a plane substantially perpendicular to said optical axis. The laser welding head is configured to be fastened against the focusing lens without any lateral opening between the focusing lens and the protective chamber. The head presents a distance of at least 100 mm between an outlet of the annular nozzle and the protective chamber.

30. Determination of a quality of an aluminum weld

Date: 2018-07-03 | ID: 10010978

Abstract: A method for determining a quality of at least one aluminum weld comprises detecting a force exerted on a workpiece by at least one electrode, and determining at least one factor characterizing the quality on the basis of a comparison of the detected force with at least one reference value. An aluminum welding method, a welding device set up for a corresponding operation, a welding controller and a computer program are likewise the subject matter of the disclosure.

31. Plastic welding device as well as a plastic welding method therefor

Date: 2018-07-03 | ID: 10011072

Abstract: A plastic welding device for the automatic welding of at least three components comprises at least one first tool, at least one second tool and at least one transfer device. A first component is positionable on

the first tool. The first and the second tool are movable relative to each other in order to weld the first component with a second component. The transfer device is movable relative to at least one of the tools and with it at least one third component is automatically feedable to one of the tools. In this manner, the at least one third component is weldable with the compound made up of the first and second components via the first and the second tool or via the first or the second tool in combination with the third tool.

32. Process for forming reinforced rocker panel assembly

Date: 2018-07-03 | ID: 10011312

Abstract: In a preferred embodiment, there is provided a process for forming a reinforced rocker panel assembly, and which includes positioning a reinforcement patch having first and second patch sections in surface-to-surface contact with a blank panel sheet, and welding the first patch section to the blank panel sheet. The process further includes bending both the blank panel sheet and the reinforcement patch along a bend line interposed between the first and second patch sections to form the blank panel sheet into a rocker panel portion having an elongated base section and a longitudinal flange, where the first and second patch sections are in at least partial abutting contact with the base section and the flange. The process also includes welding the second patch section to the flange.

33. Methods, processes, and apparatuses for producing dyed and welded substrates

Date: 2018-07-03 | ID: 10011931

Abstract: A dyeing and welding process may be configured to convert a substrate into a welded substrate having at least some color imparted thereto via a dye and/or coloring agent by applying a process solvent having a dye and/or coloring agent therein to the substrate, wherein the process solvent interrupts one or more intermolecular force between one or more component in the substrate. The substrate may be configured as a natural fiber, such as cellulose, hemicelluloses, and silk. The process solvent may include a binder, such as dissolved biopolymer (e.g., cellulose). After application of a process solvent comprised of a dye and/or coloring agent, the substrate may be exposed to a second application of a process solvent comprised of a binder, which second application may occur before or after a process temperature/pressure zone, process solvent recovery zone, and/or drying zone.

34. Method and mould for welding the ends of two rail portions

Date: 2018-07-03 | ID: 10011956

Abstract: Method for the aluminothermic welding of rails, involving the steps of: triggering an aluminothermic reaction in a crucible, pouring the metal resulting from said reaction into the mold so as to fill the molding cavity from the rail flange, after filling the cavity, triggering a second aluminothermic reaction above the rail

head, and pouring the metal resulting from said reaction into the cavity in the region of the rail head. The mold used in the method is designed to fit over the ends of two rails to form a molding cavity comprising a crucible positioned above the rail head region so that it can be fed with molten metal of the cavity via a secondary passage.

35. Flat roof fastening system

Date: 2018-07-03 | ID: 10011994

Abstract: A flat roof washer and heat welding installation system (1) for securing rigid roofing panels and overlaying membranes to a flat roof truss system comprising one or more wheeled carts having a plurality of screw guns (12) and/or heat welding heads (16) arranged in grid patterns to allow for quick and even installation of screwed washers and heat welds on a flat roof.

36. Large-width/diameter riser segment lowerable through a rotary of a drilling rig

Date: 2018-07-03 | ID: 10012031

Abstract: This disclosure includes auxiliary-line riser segment assemblies (e.g., with isolation units) that are suitable for managed pressure drilling (MPD) and that can be lowered (e.g., when connected to other riser segment assemblies) through a rotary of a drilling rig. Some embodiments are configured to have portions of the auxiliary lines connected (e.g., without welding) below the rotary.

37. Multiple opening counter-flow plate exchanger and method of making

Date: 2018-07-03 | ID: 10012444

Abstract: A multiple opening, counter-flow plate type exchanger is manufactured by repeatedly folding and joining one strip of membrane to form a core composed of a multitude of membrane layers with a plurality of inlet and outlet openings or fluid passageways configured in an alternating counter-flow arrangement. Methods for manufacturing such multiple opening cores are described. An integrated, modular, and stackable plastic manifold that is formed by ultrasonically welding plastic sheet stock is described. Multiple opening cores comprising water-permeable membranes can be used in a variety of applications, including heat and water vapor exchangers. In particular, they can be incorporated into energy recovery ventilators (ERVs) for exchanging heat and water vapor between air streams directed into and out of buildings, automobiles, or other Industrial processes.

38. Method for manufacturing an inductive conductivity sensor and an inductive conductivity sensor

Date: 2018-07-03 | ID: 10012608

Abstract: A method for manufacturing an inductive conductivity sensor, with coils on both sides of a circuit board are placed surrounding an opening of the circuit board. The circuit board with the coils is inserted into a housing, wherein a sleeve is inserted in the housing through a second opening of the housing through the opening of the circuit board out to a first opening. The first opening, the second opening and the opening of the circuit board are aligned with one another, wherein the sleeve includes a first end section and a second end section and the sleeve is inserted with the first end section first in the housing, and wherein the sleeve is welded with the housing by means of a sonotrode by ultrasonic welding. The first end section of the sleeve is welded with the housing and with a counterpart inserted into the first opening. The invention relates further to an inductive conductivity sensor.

39. Repairing methods of defective pixels having light spots, array substrates and liquid crystal panels

Date: 2018-07-03 | ID: 10012881

Abstract: A repairing method of defective pixels having light spots includes: connecting the pixel electrode and a drain electrode of the of the TFT via a point welding method; cutting off the continuous common electrode to divide the common electrode within the switch area and the common electrode within the pixel area; and removing the pixel electrode arranged above intersections of the common electrode, and connecting the pixel electrode within the switch area and the pixel electrode within pixel area. In addition, an array substrate and a liquid crystal panel are disclosed. By cutting off the common electrode within the pixel area switch area and the pixel area, the defective pixels having light spots are eliminated. In addition, such defective pixels are repaired to be pixels capable of emitting light normally.

40. Welding resource performance goal system and method

Date: 2018-07-03 | ID: 10012962

Abstract: Metal fabrication systems and related equipment may be monitored by collecting and transmitting parameter data relating to welding operations to a memory and processing system. Goals for selected parameters may be pre-defined, and certain of these may be standard for corresponding welding systems, locations, operations, operators, and so forth. Upon request a web based report is generated and delivered to a user that indicates the system or systems, comparisons of the actual system performance versus the goals, time periods for the comparisons, and so forth.

41. Pouch-type secondary battery including sealed part having recess

Date: 2018-07-03 | ID: 10014497

Abstract: Disclosed herein is a battery cell configured such that an electrode assembly having a positive

electrode/separator/negative electrode structure is received in an electrode assembly receiving part formed in a pouch-type battery case in a sealed state together with an electrolyte, wherein the battery case is provided with sealed parts, formed by thermally welding the outer edge of the battery case in the state in which the electrode assembly is received in the battery case together with the electrolyte, one or more recesses are formed in opposite side sealed parts adjacent to an upper end sealed part, at which electrode terminals are located, and/or a lower end sealed part in a state in which the recesses are formed from outsides of the side sealed parts toward a vertical middle axis of the battery cell so as to prevent wrinkles from being formed in the sealed parts of the battery case when the battery cell is bent, and portions of the side sealed parts in which the recesses are located are sealed at a higher sealing temperature than the remaining portions of the side sealed parts.

42. Battery module and electrode tab ultrasonic wave welding method

Date: 2018-07-03 | ID: 10014511

Abstract: Provided are a battery module and an electrode tab ultrasonic wave welding method. The present invention relates to a battery module and an electrode tab ultrasonic wave welding method by forming the electrode tab in a zigzag form in which the electrode tab extending upwardly is bent downwardly and then, again bent upwardly to allow the electrode tab formed in the zigzag form to absorb vibrations even when a welding portion formed in parallel with a battery cell is fused by ultrasonic wave vibrations, thereby minimizing damage to the battery cell.

43. Fuel cell

Date: 2018-07-03 | ID: 10014548

Abstract: A fuel cell includes a power generation unit. A first resin frame member is provided in an outer portion of a first membrane electrode assembly of the power generation unit. The first metal separator has a heating portion subjected to spot heating from a surface of the first metal separator for allowing the first resin frame member to be melted partially. The first metal separator and the first membrane electrode assembly are welded together by a plurality of welding portions to form a first structural body.

44. Method for manufacturing interphase insulating sheet of rotating electric machine, and electric compressor

Date: 2018-07-03 | ID: 10014756

Abstract: An overlapping portion of an insulating portion formed in an annular shape is held between a workbench having a linear projection and an ultrasonic horn having a circular projection with at least part of the linear projection and of the circular projection opposed to each other and ultrasonically welded. In the

ultrasonic welding, even though the ultrasonic horn under ultrasonic vibration rotates on the overlapping portion of the insulating portion, the area in the overlapping portion held between the linear projection and the circular projection with at least part of the linear projection and of the circular projection opposed to each other is not reduced after ultrasonic vibration is applied to the ultrasonic horn.

45. Welding torch detector and welding robot system

Date: 2018-07-10 | ID: 10016834

Abstract: A welding torch detector including an imaging unit capturing images of a welding torch and welding wire from a plurality of directions to acquire image signals, an image recognition unit recognizing welding wire images and welding torch images based on the image signals acquired, a setting unit setting a target point corresponding to a target position of the welding wire on the welding wire images recognized, a position detection unit detecting a position of the target point in a three-dimensional space based on the welding wire images recognized, and an inclination detection unit detecting an inclination of the welding torch in the three-dimensional space based on the welding torch images recognized.

46. Sonotrode and anvil energy director grids for narrow/complex ultrasonic welds of improved durability

Date: 2018-07-10 | ID: 10016836

Abstract: A specially designed sonotrode and anvil are adapted to be used in combination for ultrasonic welding of work pieces, to produce a narrower weld region, but one exhibiting greater durability, thereby permitting use of less packaging material. The contact surfaces comprise a surface of the anvil having a plurality of energy directors, where the plurality of energy directors are arranged into a three-dimensional grid pattern to be capable of distributed vibration-transmissive contact. The energy directors may comprise a series of plateau surfaces being regularly spaced apart from each other in a first direction, and in a second direction that is orthogonal to the first direction, to form the grid pattern. The rectangular-shaped plateaus may be spaced apart by valleys. Engagement of the energy directors of the anvil with the corresponding surface of the sonotrode may cause minor elastic deformation of work pieces positioned therebetween prior to ultrasonic welding.

47. Method of joining heat-treatable aluminum alloy members by friction stir welding

Date: 2018-07-10 | ID: 10016837

Abstract: A method of joining heat-treatable aluminum alloy members by friction stir welding, including the steps of: a T4-treatment-performing step of performing a T4 treatment on heat-treatable aluminum alloy members so as to impart T4 temper to the heat-treatable aluminum alloy members; a joining step of joining

the heat-treatable aluminum alloy members with T4 temper by friction stir welding to provide a joined product; and a reversion-treatment-performing step of performing a reversion treatment, the reversion-treatment-performing step being carried out prior to or after the joining step.

48. Friction stir welding tool

Date: 2018-07-10 | ID: 10016838

Abstract: A friction stir welding tool attachable to a spindle of a machine tool includes: a shank connected to the spindle; a chuck connected to the shank through a heat insulating portion; a welding tool connected to the chuck and usable for friction stir welding; and a cooling jacket provided on a circumferential surface of the chuck. The cooling jacket is provided with a refrigerant path for delivering a refrigerant.

49. Friction stir welding tool and a method of fabricating the same

Date: 2018-07-10 | ID: 10016839

Abstract: A friction stir welding tool comprising a composite of a tungsten-rhenium alloy and hafnium carbide particles, wherein a crystallite size of the tungsten-rhenium alloy is no more than 100 nm, wherein the hafnium carbide particles are dispersed within the tungsten-rhenium alloy, a method of fabricating the friction stir welding tool, and a method of friction stir welding a metal joint using the tool. Various embodiments of the friction stir welding tool, the method of fabricating the tool, and the method of friction stir welding using the tool are provided.

50. Fabrication of pipe strings using friction stir welding

Date: 2018-07-10 | ID: 10016840

Abstract: A method of fabricating a metal pipeline by friction stir welding (FSW) along a circumferential interface includes spinning first and second FSW tools about respective axes of rotation in contact with a pipe wall to heat, plasticize, and stir respective zones of plasticized metal at the interface. The zone of plasticized metal produced by the second FSW tool extends deeper into the pipe wall than the zone of plasticized metal produced by the first FSW tool. Relative circumferential movement of the FSW tools along the interface is controlled such that the second FSW tool following the first FSW tool enters the zone of plasticized metal produced by the first FSW tool while the metal in that zone remains plastic.

51. Method and device for cutting wound hoses

Date: 2018-07-10 | ID: 10016847

Abstract: A method for cutting a wound hose (1), made from mutually engaging windings (11, 12, 13, 14) of a metallic tape (2), with the wound hose (1) being welded in a predetermined axial area (10) and then cut within

the area (10) essentially in a plane (6) extending radially, with the wound hose (1) being axially compressed in the predetermined area prior to welding such that in the area (10) a mutual contacting of the windings (11, 12, 13, 14) occurs. The welding is performed along a predetermined number of windings (11-14) in the area (10), and the welding energy required for welding the windings is introduced via the area of the winding hose into it. Additionally, an accordingly produced wound hose (1) is provided and a device suitable for its production.

52. Method for welding a weld-on element onto a counterpart

Date: 2018-07-10 | ID: 10016849

Abstract: A method for welding a weld-on element onto a component is proposed, comprising at least the step that, before the welding process, at least one of the parts being connected is wetted with a wetting agent over the full area and uniformly in layer thickness in a welding region.

53. Systems and methods for welding electrodes

Date: 2018-07-10 | ID: 10016850

Abstract: The invention relates generally to welding and, more specifically, to welding wires for arc welding, such as Gas Metal Arc Welding (GMAW) or Flux Core Arc Welding (FCAW). In one embodiment, a method of manufacturing a tubular welding wire includes disposing a core within a metallic sheath. Further, the core includes an organic stabilizer component, in which the organic stabilizer component is an alkali metal or alkali earth metal salt of an organic molecule or an organic polymer.

54. Deep trailing edge repair

Date: 2018-07-10 | ID: 10016853

Abstract: A method for repairing a blade tip of a turbine blade based on welding below and above a designated depth recommended for repair of turbine blades. A damaged portion of the turbine blade is inspected to identify a standard cut portion and an angled cut portion. The standard cut portion is damaged above a standard cut line and the angled cut portion is damaged below the standard cut line. The damaged portion of the turbine blade is removed. The standard cut portion is removed using a first removal process and the angled cut portion is removed using a second removal process. The angled cut portion is built up with a first weld repair process. The angled cut portion is built up to the standard cut portion. The standard cut portion and the angled cut portion are built up with a second weld repair process.

55. Method of removing ineffective portion of flat heat pipe

Date: 2018-07-10 | ID: 10016857

Abstract: A method of removing ineffective portion of flat heat pipe is disclosed. The method includes the steps of providing a flat heat pipe; flattening out at least one wick-free flatten-out zone of the flat heat pipe and then sealing the flattened flatten-out zone by welding; and cutting off a cut-away section but reserving a remainder section of the flattened and sealed flatten-out zone, so that an ineffective portion is removed from the flat heat pipe. After being processed with the above method, the flat heat pipe can have effectively increased heat transfer efficiency and save a lot of space.

56. Package formed with a stepped sonotrode/anvil combination having energy director grids for narrow ultrasonic welds of improved durability

Date: 2018-07-10 | ID: 10017287

Abstract: A sonotrode and anvil are adapted for ultrasonic welding of work pieces, to produce a narrower weld region that exhibits greater durability, permitting use of less material per package. The horn-to-anvil contact is through a plurality of energy directors arranged into a three-dimensional grid pattern to be capable of distributed vibration-transmissive contact. The energy directors include a series of plateau surfaces regularly spaced apart in a first direction, and in a second direction that is orthogonal to the first direction, to form the grid pattern. The energy directors of the horn are configured to interlock with the energy directors of the anvil. The rectangular-shaped plateaus are spaced apart by angled side-surfaces that form valleys. A stepped transition to a corresponding region of reduced height for the energy directors of the sonotrode and anvil may form a cosmetic seal region with a lesser integrity, in addition to the main barrier seal.

57. Downhole distributed sensor arrays for measuring at least one of pressure and temperature, downhole distributed sensor arrays including at least one weld joint, and methods of forming sensors arrays for downhole use including welding

Date: 2018-07-10 | ID: 10018033

Abstract: A downhole sensor array includes sensor housings, and each sensor housing contains one or more of a pressure sensor and a temperature sensor. Cable segments connect the sensor housings. A weld joint bonds a sensor housing to a jacket of a cable segment, and a conductor of the cable segment and the jacket of the cable segment may be separated by a void proximate the weld joint. Methods relate to forming such sensor arrays.

58. Kelvin contact assembly in a testing apparatus for integrated circuits

Date: 2018-07-10 | ID: 10018653

Abstract: An electrical Kelvin contact assembly for testing IC testing apparatus that uses an assembly design

that reduces the tolerance to a near negligible range. The assembly does not use any screws, dowel pins, adhesives or welding to fasten the electrical contacts to the housing. The design of the assembly uses rows of contacts with specially designed protrusions that sit snugly in openings located on three plate-like layers. These layers contain the contacts in the horizontal plane by securing the protrusions in the opening, as well as in the vertical plane by means of a sandwich between three separate layers. A second contact is slid into back slits formed by the three layers.

59. Disk device and method of manufacturing disk device

Date: 2018-07-10 | ID: 10020027

Abstract: According to one embodiment, a disk device includes a disk-shaped recording medium, a head which processes data on the recording medium, and a housing accommodating the recording medium and the head. The housing includes a base with a side wall, and a cover having a welded portion welded to the side wall by laser welding. The welded portion includes a first welded portion welded to a first region of the side wall and having weld beads with a first shape, and a second welded portion welded to a second region of the side wall and having welded beads with a second shape different from the first shape.

60. Nuclear reactor nozzle repair method

Date: 2018-07-10 | ID: 10020080

Abstract: A nozzle repair method and a nuclear reactor vessel include: removing a trepanning portion (208) as a connection portion with respect to an in-core instrumentation cylinder (204) in a groove-welding portion (206); removing the in-core instrumentation cylinder (204) from a semi-spherical portion (66) as a lower end plate; forming a surface buttered-welding portion (210) by buttered-welding the surface of the groove-welding portion (206); forming a welding groove (212) by grooving the surface buttered-welding portion (210); inserting a new in-core instrumentation cylinder (204A) provided with a circumferential groove portion (204f) outside an instrumentation equipment guide passage (204d) into an attachment hole (203); and fixing the new in-core instrumentation cylinder (204A) by groove-welding the welding groove (212). Accordingly, since the nozzle welding area is suppressed to a predetermined range, the workability of the repair is improved.

61. Three-dimensional network aluminum porous body, electrode using the aluminum porous body, and nonaqueous electrolyte battery, capacitor and lithium-ion capacitor with nonaqueous electrolytic solution, each using the electrode

Date: 2018-07-10 | ID: 10020126

Abstract: A three-dimensional network aluminum porous body which enables to produce an electrode

continuously, an electrode using the aluminum porous body, and a method for producing the electrode is disclosed. A long sheet-shaped three-dimensional network aluminum porous body is provided to be used as a base material in a method for producing an electrode including at least winding off, a thickness adjustment step, a lead welding step, an active material filling step, a drying step, a compressing step, a cutting step and winding-up, wherein the three-dimensional network aluminum porous body has a tensile strength of 0.2 MPa or more and 5 MPa or less.

62. Electrical connection element for fastening, in particular soldering, to a glass pane, and ribbon litz wire mixed braid

Date: 2018-07-10 | ID: 10020597

Abstract: An electrical connection element for fastening, in particular soldering, to a glass pane and conductive sections present there, in particular to a vehicle pane, consisting of a solder connection part and a ribbon litz wire section fixed to the solder connection part by welding. The ribbon litz wire section consists of a mixed braid which, in addition to single wires made of copper or a copper alloy, contains single wires made of a material which has a melting temperature that corresponds substantially to the melting temperature of the solder connection part or has a higher melting temperature than the latter.

63. Face protector

Date: 2018-07-17 | ID: 10022273

Abstract: Provided is a face protector provided with a transparent film sheet to protect a viewing window of any one working mask selected from a safety face shield or a welding helmet. One or more transparent film sheets are inserted into a gap between the surface of the upper part of the viewing window and the bent inner surface of an upper support brim and thus combined with the surface of the viewing window, thereby preventing contaminants, paints, slag or metal particles, which may contaminate the viewing window during a working process, from being attached to the viewing window, securing a worker's clear view to increase worker safety, and to greatly extending the working mask.

64. Short arc welding system

Date: 2018-07-17 | ID: 10022813

Abstract: A system for controlling a weld-current in an arc welding apparatus for short arc welding comprising a current regulator included in a voltage feedback loop from a power supply to a welding electrode and a ramp generator arranged to provide current ramps during a short circuit phase at said welding electrode.

65. Method and welding apparatus for the determination of the strength of the welding

current to be used in the welding of container bodies

Date: 2018-07-17 | ID: 10022814

Abstract: For the determination of the welding current to be used for the resistance welding of the overlap seam of container bodies, welding with a test body is carried out with a changing strength of welding current which in the test body produces a varying welding of the seam. The current strength varies from welding of this seam with a too high temperature to welding with a too low temperature. Along with this the welding current strength used in the welding is determined so that it is further determined at which point of the seam the welding has been accomplished and with what strength of welding current. By means of a mechanical and/or optical investigation of the welded seam it can then be easily determined where the seam has been correctly welded for the series production of container bodies from the same sheet material as the test bodies. When such a point or such a region of the seam is known the welding current used in the test welding can be taken as the welding current for serial production.

66. Drawback valve systems and methods for coolant drawback

Date: 2018-07-17 | ID: 10022815

Abstract: A first electrode coolant path is configured to cool a first welding electrode by liquid coolant flowing from a supply path through the first electrode coolant path to a return path. A second electrode coolant path is configured to cool a second welding electrode by liquid coolant flowing from the supply path through the second electrode coolant path to the return path. Three or more valves are configured to stop or reduce liquid coolant flow through the first or second electrode coolant path and configured to stop or reduce liquid coolant backflow from the return path when the first or second welding electrode is at least partially detached. At least one valve is coupled in the first or second electrode coolant path. A drawback apparatus generates a suction force to draw liquid coolant away from a gap formed when the first or second welding electrode is at least partially detached.

67. Friction welding method

Date: 2018-07-17 | ID: 10022816

Abstract: The present invention is a friction welding method for friction welding of metal members characterized by starting friction welding in a state inserting an insert material between surfaces of the metal members facing each other, wherein the insert material consists of a metal having a melting point (centigrade temperature) of 60 to 80% of the melting point (centigrade temperature) of the metal members, melting the insert material, and pushing the melted insert material out from between the pair of metal members. Due to this, the adverse effects due to high temperature heating like in the past are eliminated while a quality of joint

equal to or better than the past is obtained in a short time period.

68. Friction stir welding tool including a dovetail connection

Date: 2018-07-17 | ID: 10022817

Abstract: A tool for friction stir welding includes a tool part, a shank part and a cap part. The tool part and the shank part have a hexagonal frustum-shaped concave section and a hexagonal frustum-shaped convex section to enable movement of the tool part with respect to the shank part in a direction parallel to an axis of rotation while movement of the tool part with respect to the shank part in a direction around the axis of rotation is restricted, by the hexagonal frustum-shaped concave section and the hexagonal frustum-shaped convex section of the tool part and the shank part are fitted to each other. After the hexagonal frustum-shaped concave section and the hexagonal frustum-shaped convex section are fitted to each other, by the tool part and the shank part being covered by the cap part, the tool part is fixed to the shank part.

69. Methods and systems for coherent imaging and feedback control for modification of materials

Date: 2018-07-17 | ID: 10022818

Abstract: Methods and systems are provided for using optical interferometry in the context of material modification processes such as surgical laser or welding applications. An imaging optical source that produces imaging light. A feedback controller controls at least one processing parameter of the material modification process based on an interferometry output generated using the imaging light. A method of processing interferograms is provided based on homodyne filtering. A method of generating a record of a material modification process using an interferometry output is provided.

70. Safety confinement equipment for laser radiation

Date: 2018-07-17 | ID: 10022819

Abstract: Safety confinement equipment for laser radiation includes a safety confinement enclosure having two laterally opposite openings through which at least one metal strip can pass, the enclosure including first and second jaw devices for clamping the strip disposed on a path of travel of the strip between the two openings, the jaws being transversely disposed at least over the width of the strip. A cutting or welding equipment head emits a beam of laser radiation to be confined, in which the beam can be moved transversely between a pair of jaws disposed opposite each other on one side of a surface of the strip. In the position in which the jaws clamp the strip, the engagement of the jaws on the surfaces of the strip induces the formation of a physical screen against the laser radiation, which prevents the radiation from passing through the two openings of the chamber.

71. Thick steel sheet having excellent CTOD properties in multilayer welded joints, and manufacturing method for thick steel sheet

Date: 2018-07-17 | ID: 10023946

Abstract: Provided are a thick steel plate with which a welded joint having good CTOD property is formed by low-to-medium heat input multipass welding and a method for producing the thick steel plate. The steel plate has a composition containing, by mass, C: 0.03% to 0.10%, Si: 0.5% or less, Mn: 1.0% to 2.0%, P: 0.015% or less, S: 0.0005% to 0.0050%, Al: 0.005% to 0.060%, Ni: 0.5% to 2.0%, Ti: 0.005% to 0.030%, N: 0.0015% to 0.0065%, O: 0.0010% to 0.0050%, Ca: 0.0005% to 0.0060%, and, as needed, one or more elements such as Cu. Ti/N, Ceq, Pcm, and ACR each fall within the specific range. The effective crystal grain size of the base metal at the center of the plate in the thickness direction is 20 μ m or less. A specific amount of a composite inclusion including a sulfide containing Ca and Mn and an oxide containing Al having an equivalent circular diameter of 0.1 μ m or more is present at the $\frac{1}{4}$ -thickness position and the $\frac{1}{2}$ -thickness position of the plate. The steel having the above-described composition is heated to a specific temperature, hot rolled, and cooled.

72. In situ tip repair of an airfoil tip in a gas turbine engine via frictional welding

Date: 2018-07-17 | ID: 10024163

Abstract: Methods for material build-up on a tip of a blade of a gas turbine engine are provided. The method can include inserting a material supply and an inflatable bladder between the tip and a shroud such that the material supply is exposed to the tip and the inflatable bladder is positioned between the material supply and a shroud, inflating the inflatable bladder to force contact between the material supply and the tip, and causing relative movement between the material supply and the tip. The relative movement, in combination with the radial biased contact between the material supply and the tip, creates heat through friction. As such, the relative movement can frictionally weld new material from the material supply onto the tip of the blade. For example, the heat created can be sufficient to melt the surface of the material supply to transfer material from the material supply to the tip.

73. Fan assembly

Date: 2018-07-17 | ID: 10024329

Abstract: A fan assembly in which all of the major structural components of the assembly are mechanically fastened together by non-welding means, such as mechanical fasteners, is disclosed. The disclosure also relates to a fan assembly in which the major structural components have planar segments separated by bend lines that approximate a curved shape, and that can be formed, for example, by a press brake machine. Such a construction can eliminate the necessity for rolling, welding, and painting of the structural components of

the fan assembly.

74. Hose coupling

Date: 2018-07-17 | ID: 10024473

Abstract: A device for releasable fixed holding of a welding wire in a welding wire guide is described. This device is characterized in that the welding wire guide includes a cage for radially displaceable braking bodies, wherein a locking cone surrounds the braking bodies, and that, of the two cooperating functional elements, formed on the one hand by the welding wire guide and on the other hand by the locking cone, one is mounted in a non-displaceable manner in a holder and the other is mounted to be axially displaceable against a spring force with respect to the non-displaceable functional element.

75. Condensing water heater with dielectrically insulated secondary flue

Date: 2018-07-17 | ID: 10024574

Abstract: A high efficiency condensing flue gas-fired water heater is provided with a secondary tubular flue mounted inside the water tank and secured thereto by dielectric connectors to electrically isolate the secondary tubular flue from the tank. The secondary tubular flue has an intermediate helical section and opposed connecting end sections which each form a part of the dielectric connectors. The connectors do not require any welding for its installation to the tank and a compression nut and dielectric insulators provide for a leak proof and electrically isolated connection. The method of securing the secondary tubular flue is also described.

76. Heat energy sensing and analysis for welding processes

Date: 2018-07-17 | ID: 10024735

Abstract: A series of time-sequenced heat energy data arrays or data stream sets of a weld process region are processed by a weld data array or data stream processing system to produce a heat energy data set output that is related to weld process region features or weld process region heat energy data. The heat energy data set output can be displayed to a system user and modified by system user input to the weld data array or data stream processing system; alternatively, or in combination, the system user output and input, the heat energy data set output, or data produced from the heat energy data set output by the weld data array or data stream processing system, can be transmitted to a weld process controller to adjust parameters in the weld process responsive to the output of the weld data array or data stream processing system.

77. Temperature measurement method, and temperature measurement device

Date: 2018-07-17 | ID: 10024737

Abstract: In order to evaluate the cooling performance of cutting oil, cooling water, and the like more accurately than conventional means, there are provided a temperature measurement method and a temperature measurement device that can actually ascertain the temperature of a rotating tool such as a cutting tool during cutting or welding torch during welding in real time. The temperature measurement method uses a rotating holder that is rotatable around a rotating axis and has a hollow hole extending from a front end to a rear end along the rotating axis, and a rotating tool that is connected to the rotating holder and has a coaxial through hole with the hollow hole. In the temperature measurement method, a step of attaching a temperature measurement unit near the through hole of the rotating tool, a step of measuring the temperature of the rotating tool that rotates coaxially with the rotating holder using the temperature measurement unit, and a step of receiving a measurement result of the temperature measurement unit by an electronic substrate are performed in this order.

78. Nuclear reactor nozzle repair method

Date: 2018-07-17 | ID: 10026512

Abstract: A nozzle repair method and a nuclear reactor vessel include: removing a trepanning portion (208) as a connection portion with respect to an in-core instrumentation cylinder (204) in a groove-welding portion (206); removing the in-core instrumentation cylinder (204) from a lower end plate (66); forming a plug attachment opening (211) by removing the groove-welding portion (206); applying a pressing load to the lower end plate (66) by attaching a plug (212) to the plug attachment opening (211); and welding and fixing the plug (212) attached to the plug attachment opening (211). Accordingly, since a repair is easily performed, it is possible to improve the workability and to decrease a repair cost.

79. Electricity storage device

Date: 2018-07-17 | ID: 10026946

Abstract: This electricity storage device comprises an electrode assembly, a case, an electrode terminal and a conductive member. The electrode assembly comprises a positive electrode, a negative electrode and a separator. The separator comprises a first separator part and a second separator part. The separator has a container part that contains portions of the positive electrode other than a tab. The separator has a welded part and a tab facing part. The welded part has facing parts that are positioned on both sides of the tab facing part. The facing parts face the electrode terminal with the conductive member being interposed therebetween. The facing parts are larger in shrinkage amount associated with thermal welding than the other portions of the welded part.

80. Pressure welding device with a measuring device, measuring in a contactless manner, for

detecting the surface quality, the true running and/or the axial runout in a front welding area

Date: 2018-07-24 | ID: 10029329

Abstract: A pressure welding device (1), especially a friction welding device, holds workpiece parts (2, 4) in clamping devices (6, 7) and axially moves the workpieces towards each other by means of a feed device (21). The pressure welding device (1) has a measuring device (8, 13), measuring in a contactless manner. The measuring device detects the surface condition and/or the concentricity and/or true running and/or the axial runout and/or radial runout in a front welding region (3, 5) of a workpiece part (2, 4).

81. Apparatus and method for monitoring laser welding bead

Date: 2018-07-24 | ID: 10029334

Abstract: An apparatus for monitoring a laser welding bead irradiates a laser to a surface of a welding bead when welding with a laser welding machine, collects a signal reflected from the surface of the welding bead as an image signal, and then extracts at least one feature variable of a bead shape using the collected image signal. Then, the apparatus for monitoring the laser welding bead determines welding defects using the at least one feature variable, and controls an operation of the laser welding machine according to whether or not the welding defects are generated.

82. Method of manufacturing heat dissipation device

Date: 2018-07-24 | ID: 10029337

Abstract: A method of manufacturing heat dissipation device includes the steps of providing at least one heat transfer unit; further providing at least one frame for connecting to the at least one heat transfer unit; and spot welding the heat transfer unit to the frame at a junction formed therebetween, so that the heat transfer unit is fixedly attached to the frame. With the above method, the steps for assembling the heat transfer unit to the frame are effectively reduced, and the material and production costs for applying adhesive agent or adhesive tape are also saved.

83. Welding wood creeper recliner

Date: 2018-07-24 | ID: 10029362

Abstract: The welding Wood Creeper Recliner is designed for the welding field, focusing on the overhead welding. This creeper comprise on the frame, the back-receiving and the sitting part which are made of wood allowing the use of the electric equipment without the risk of electrocution as would be with metal material. The frame it is the base of the creeper, the seating-part it is mounted on top of the frame which it is elevated to prevent the user to slide forward and the back-receiving has a reclining mechanic system designed to lounge to seven position depending on height of the project. Additionally this wood creeper has a four caster

wheels allowing the user to move without stopping the welding procedure.

84. Welding apparatus and welding method

Date: 2018-07-24 | ID: 10029408

Abstract: A compact pressing body with a pressing surface smaller in area than a welding range welds together sheet-like members over the whole area of the welding range by pressing the sheet-like members being reliably moved in a direction substantially orthogonal to a pressing direction of the pressing body.

85. Transverse sonotrode design for ultrasonic welding

Date: 2018-07-24 | ID: 10029409

Abstract: An ultrasonic welding system that includes an ultrasonic transducer configured to convert electricity to generate ultrasonic waves, wherein the waves propagate along a first direction from the transducer; and a sonotrode that includes a single-component body having nodal and anti-nodal regions, and configured to propagate ultrasonic waves received at a nodal region along a first direction; a plurality of redirecting features formed in the body and configured to cause received ultrasonic waves propagating along the first direction to propagate along a second direction, perpendicular to the first direction, upon encountering one or more of the redirecting features; wherein the body is further configured to stretch and compress along the second direction based on corresponding peaks and valleys of the waves propagating along the second direction; and at least one ultrasonic welding surface at an anti-nodal region of the body configured to oscillate based on the stretching and compressing, wherein opposing ends of the sonotrode comprise the nodal region, at least one of the opposing ends configured to receive the ultrasonic waves.

86. Infrared welded exterior panel assembly and process of making same

Date: 2018-07-24 | ID: 10029410

Abstract: An exterior body panel assembly having a Class A painted surface, mold-in color or non-Class A surface, and process of infrared welding components of the assembly. Panels of the assembly are placed on a nesting structure and the inside half of the structures are brought together with the other for a fit check. Panels are separated and an infrared heating fixture then heats the various areas to be heated on the panels. The areas on the panels are heated depending on the thicknesses of the parts at each area and surface geometries to be welded. The parts are immediately clamped back together under pressure for joining and cooling of the joined surfaces in the clamped arrangement.

87. Irrigation pipe and method of fabrication

Date: 2018-07-24 | ID: 10030797

Abstract: An irrigation pipe and method of fabrication that utilizes a pipe that is made of a durable material, e.g., stainless steel or aluminum. During fabrication, the pipe is equipped with a plurality of components, i.e., a flange assembly, a truss mount, and an outlet, without drilling, welding, or the like. In this manner, a method of fabrication is provided that enables a plurality of components to be assembled to the pipe without compromising the integrity of the pipe material or treated surface so that galvanizing or painting is not required after the plurality of components have been fitted to the pipe.

88. Micro heat exchangers for controlling temperature of workpieces being joined by welding

Date: 2018-07-24 | ID: 10031499

Abstract: A thermal-management system, for use in controlling temperature of a first workpiece of workpieces being joined by welding. The system includes a micro heat exchanger including a heat-transfer fluid tube extending between an inlet and an outlet. The system in some implementations has a body and the inlet and outlet are connected to the body. The heat-transfer fluid tube is configured to channel heat-transfer fluid, such as a nanofluid, to heat or cool the workpiece(s). The heat-transfer fluid is configured to cool or heat at least the first workpiece when the heat-transfer fluid is channeled through the heat-transfer fluid-tube section in operation of the thermal-management system. The technology further includes methods and hardware-based controlling apparatus for using the micro heat exchanger to cool or heat the workpieces.

89. Augmented and mediated reality welding helmet systems

Date: 2018-07-24 | ID: 10032388

Abstract: A welding helmet system is provided. The welding helmet system includes a protective shell and a welding display system. The welding display system is configured to be removably coupled to the protective shell. The welding display system is configured to receive data from a sensor, and to display a welding metric derived from the sensor via the image generation system.

90. Method of manufacturing solid electrolytic capacitor, and solid electrolytic capacitor

Date: 2018-07-24 | ID: 10032566

Abstract: A method of manufacturing a solid electrolytic capacitor wherein a resistance increasing process is performed on at least one of a bonding portion of an anode lead terminal and a bonding portion of an anode in order to increase contact resistance between the anode lead terminal and the anode. Thereafter, the anode and the anode lead terminal are welded to each other by resistance welding at the bonding portions.

91. Image sensor structure and packaging method thereof

Date: 2018-07-24 | ID: 10032824

Abstract: The present invention discloses a CMOS image sensor structure and packaging method thereof. The method includes the following steps: providing an image sensor chip and a transparent package substrate that is ground and cut, the front side of the image sensor chip being provided with an image sensing region and a pad region surrounding the image sensing region; bonding a first end of a metal wire onto the pad, the other end being suspended outside the image sensor chip; bonding the transparent package substrate and the image sensor chip having the metal wire to form an image sensor package, which can be assembled by surface mount technology (SMT) or pressure welding via the exposed and suspended metal wire. In the present invention, an auxiliary substrate is optionally used and an optical glass is directly fixed to the image sensor chip, and the image sensor chip is directly connected to a circuit board. The image sensor products using this packaging method have better performance, reliability, and ultra-low packaging costs.

92. Solar cell having Ti- or Ta-containing thermal and diffusion barrier layer for foil-based metallization

Date: 2018-07-24 | ID: 10032942

Abstract: Methods of fabricating solar cells using a metal-containing thermal and diffusion barrier layer in foil-based metallization approaches, and the resulting solar cells, are described. For example, a method of fabricating a solar cell includes forming a plurality of semiconductor regions in or above a substrate. The method also includes forming a metal-containing thermal and diffusion barrier layer above the plurality of semiconductor regions. The method also includes forming a metal seed layer on the metal-containing thermal and diffusion barrier layer. The method also includes forming a metal conductor layer on the metal seed layer. The method also includes laser welding the metal conductor layer to the metal seed layer. The metal-containing thermal and diffusion barrier layer protects the plurality of semiconductor regions during the laser welding.

93. Prismatic battery having electrolyte injection-hole capable of providing excellent sealing ability

Date: 2018-07-24 | ID: 10033028

Abstract: Disclosed herein is a secondary battery having an electrode assembly mounted in a prismatic container, wherein the inside of an electrolyte injection hole formed in a base plate mounted to an open upper end of the prismatic container includes an upper part having a chamfered structure in which the diameter of the electrolyte injection hole is gradually decreased downward and a lower part having a non-chamfered structure continuously formed from the chamfered structure, and, when a sealing member is pressed into the

electrolyte injection hole, the sealing member deformed into a shape corresponding to the electrolyte injection hole comes into tight contact with the chamfered structure due to shear stress between the chamfered structure and the sealing member and forms a sealed state due to frictional interaction between the non-chamfered structure and the sealing member. Consequently, it is possible to reduce a defect rate of secondary batteries and to improve sealability of the electrolyte injection hole without welding.

94. Connector

Date: 2018-07-24 | ID: 10033129

Abstract: It is aimed to make connectors accommodating wires conductive to each other without using terminals. Connectors each including wires (2) formed with core exposed portions (2B) by removing parts of coatings (2A) and a connector housing (1) for accommodating the wires (2) while exposing the core exposed portions (2B) in an opening (4) are stacked with the openings (4) facing each other. An operation hole (5) is formed on a side opposite to the opening (4) in the both connector housings (1). Electrodes (9) of a welding machine are inserted through the both operation holes (5) and the core exposed portions (2B) corresponding in a stacking direction are welded to each other. In this way, the wires (2) can be directly connected between the both connectors without using terminals.

95. Circuit board secured to battery cell using a circuit board through hole and methods for welding the circuit board

Date: 2018-07-24 | ID: 10034373

Abstract: An electronic device having a circuit board and a battery is disclosed. The circuit board may include a through hole and an electrical pad surrounding the through hole. In order to electrically couple the circuit board to the battery, and in particular, an electrode of the battery, a tab (or plaque) is placed between the electrical pad and the electrode. The tab electrically couples with the electrical pad by a soldering operation. To couple (electrically and mechanically) the tab with the electrode, a welding operation is used. The welding operation may include a laser weld providing thermal energy through a laser beam. In this regard, the laser beam passes through the through hole, thereby (partially) melting the tab and forming a weld between the tab and the electrode. Accordingly, the tab covers the through hole such that the tab is positioned to receive the laser beam.

96. Sanitary sheath for a syringe for insemination by straw and its method of manufacture

Date: 2018-07-31 | ID: 10034732

Abstract: The sheath (30) comprises a tube (31) and an end piece (32) that comprises a foot (33) introduced into an end portion of the tube (31), and a head (34) arranged in the extension of the tube (31). The foot (33)

comprises, on the outer surface (40) thereof, a plurality of annular ribs (41-44) facing the inner surface (45) of the tube (31). The head (34) comprises a shoulder (38) facing the section (39) of the tube (31), projecting over the root of the foot (33). The end piece (32) and the tube (31) are attached to the periphery of at least one of said annular ribs exclusively by intrinsic welding. The method comprises the step of carrying out a peripheral tightening of the outer surface (37) of the tube on a level with the ribs (41-44), and the step of applying a sonotrode to the outer surface (35-36) of the head (34).

97. Golf club head

Date: 2018-07-31 | ID: 10035050

Abstract: A head 2 includes a face 4, a crown 6, and a sole 8. At least a part of the crown 6 and/or at least a part of the sole 8 is formed by a clad material. The clad material is joined to an adjacent portion brought into contact with a peripheral edge of the clad material. The clad material includes a first layer s1 and a second layer s2. The first layer s1 is the outermost layer. The first layer s1 is welded to the adjacent portion. The second layer s2 does not have an affinity for welding with the adjacent portion.

98. Method of forming fillet arc welded joint and fillet arc welded joint

Date: 2018-07-31 | ID: 10035208

Abstract: Stiffening beads (55A, 55B) are formed in turned portions in a region of a fillet bead (53) formed in a single stroke manner. At this time, it is set in such a manner that welding start positions of the stiffening beads (55A, 55B) are in a region near the fillet bead and do not exist independently without mixing with other weld beads.

99. Adaptive GMAW short circuit frequency control

Date: 2018-07-31 | ID: 10035209

Abstract: A welding apparatus having a waveform compensation device, a power section coupled to the waveform compensation device which generates a welding waveform in accordance with a signal from the waveform compensation device, and a frequency detection device which detects at least one of a voltage, current and power of a welding arc and determines a shorting frequency of the arc. The waveform compensation device adjusts at least a portion of the welding waveform based on an output from the frequency detection device.

100. Tandem hot-wire systems

Date: 2018-07-31 | ID: 10035211

Abstract: A system and method is provided. The system includes a first power supply that outputs a welding

current that includes welding pulse currents and a background welding current. The system also includes a second power supply that outputs a heating current that includes first heating pulse currents at a first polarity and second heating pulse currents at an opposite polarity. The system also includes a controller that synchronizes at least one of the first heating pulse currents and the second heating pulse currents with at least one of the welding pulse currents and the background current to influence a position of an arc relative to a molten puddle based on magnetic fields created by the welding current and the heating current.

101. Method for producing thermoplastic foam panels by means of at least two heating elements offset in parallel with each other

Date: 2018-06-19 | ID: 10000014

Abstract: The present invention relates to a process for the production of at least two-layer thermoplastic foam sheets via thermal welding of at least two thinner thermoplastic foam sheets. In the process of the invention, at least two heating elements are conducted on mutually offset planes between the surfaces to be welded of the thinner thermoplastic foam sheets, and the foam sheets here do not touch the heating elements. The number of layers of the thermoplastic foam sheet is per se a result of the number of thinner thermoplastic foam sheets that are thermally welded to one another. If by way of example three thinner thermoplastic foam sheets are thermally welded to one another, a three-layer thermoplastic foam sheet is per se obtained, and if there are four thinner thermoplastic foam sheets the result is accordingly per se a four-layer thermoplastic foam sheet.

102. Connection structure of column and beam and method for connecting column and beam

Date: 2018-06-19 | ID: 10000919

Abstract: A pair of outer diaphragms (3a), (3b) is connected to a column (5). The outer diaphragms (3a) and (3b) include female screws (15) formed in a direction so as to be put between an end plate (13a) and the column (5). The end plate (13a) is connected by welding to the end faces of an upper flange part (11a), a lower flange part (11b), and the web of a beam (9a). On upper and lower projecting parts of the end plate (13a), bolt holes 17 are formed at the positions that correspond to the female screws (15) of the outer diaphragms (3a) and (3b). The bolts (7), which are in a direction parallel to the longitudinal direction of the beam (9a), connect the end plate (13a) to the outer diaphragms (3a) and (3b).

103. Coolant penetrating cold-end pressure vessel

Date: 2018-06-19 | ID: 10001079

Abstract: An improvement is provided to a pressurized close-cycle machine that has a cold-end pressure vessel and is of the type having a piston undergoing reciprocating linear motion within a cylinder containing a

working fluid heated by conduction through a heater head by heat from an external thermal source. The improvement includes a heat exchanger for cooling the working fluid, where the heat exchanger is disposed within the cold-end pressure vessel. The heater head may be directly coupled to the cold-end pressure vessel by welding or other methods. A coolant tube is used to convey coolant through the heat exchanger.

104. Interactive routing of connections in circuit using auto welding and auto cloning

Date: 2018-06-19 | ID: 10002224

Abstract: Embodiments relate to an interactive routing of connections in a circuit wherein the connections associated with an initial pin of a circuit element (e.g., a row of FinFETs) are replicated in association with at least one other pin of the same circuit element or a different circuit element in the circuit. Replication of connections is performed intelligently by taking into account mapping of pins as well as imposing design rules or other restrictions on the circuit. The connections are in the form of trunks and branches, and are displayed as user inputs are received. A digital representation of the circuit with the connections as displayed is also generated. At least some of the connections in the circuit are replicated without individual user inputs based on user inputs associated with a connection to the initial pin.

105. Laser beam welding diagnosis apparatus and laser beam welding diagnosis method

Date: 2018-06-19 | ID: 10002418

Abstract: A laser beam welding diagnosis apparatus includes: an imaging unit configured to capture images of a laser beam welding penetration side of a laser beam welded portion at a predetermined time interval; a feature amount calculating unit configured to calculate, from an image captured by the imaging unit, a feature amount of a jetted portion accompanying laser beam welding penetration; a welding diagnosis unit configured to determine that a welding defect in the laser beam welded portion has occurred when values of the feature amounts of a predetermined area around the laser beam welded portion on the laser beam welding penetration side become equal to or less than a predetermined value for a predetermined duration or longer; and an output unit configured to output a welding quality state including the occurrence of the welding defect.

106. Electric storage device and method for producing electric storage device

Date: 2018-06-19 | ID: 10003067

Abstract: At least a connector of a current collecting member that is welded to an electrode plate of an electrode assembly is constituted by a rolled material, and the current collecting member and the electrode assembly are bonded to each other by vibration welding.

107. End effector structure for stapling apparatus

Date: 2018-06-26 | ID: 10004552

Abstract: An end effector structure (e.g. jaws structure or similar), configured with an internal antenna for delivery of electromagnetic energy in microwave range to a straight, curved or circular end effector structure in which the portion of end effector structure includes a microwave absorbing material that absorbs microwave energy emitted by the antenna and transfers microwave energy into the heat. Such end-effector also includes surgical fasteners or staples for strengthening tissue, providing a hemostasis, tissue joint and/or welding. The microwave antenna is connected by a coaxial cable with a microwave generator. The heat generated in the microwave absorbing material is applied to the treated material (e.g. tissue) by means of capturing material in the end effector (jaw structure) and heating the tissue to the desired temperature either before, during or after a stapling procedure.

108. Chuck device and robot for changing welding tip and nozzle

Date: 2018-06-26 | ID: 10005148

Abstract: A chuck device capable of efficiently changing a welding tip and nozzle. The chuck device includes a rotatable chuck base, an engagement part fixed to the chuck base so as to rotate integrally with the chuck base and can engage an engagement surface of the welding tip, the engagement part allowing the welding tip to rotate with the chuck base when the chuck base is rotated while engaged with the engagement surface, and a plurality of fingers provided to the chuck base to be openable and closable and can hold the welding tip and the nozzle, the plurality of fingers being capable of moving in directions approaching and separating from the engagement part.

109. Capacitor-type welding device and capacitor-type welding method

Date: 2018-06-26 | ID: 10005149

Abstract: An economical capacitor-type welding device and capacitor-type welding method that have a small power loss, that can be made compact, and that reliably control a charging circuit without being affected by the inductance of a charging path. In an exemplary capacitor-type welding device and an exemplary capacitor-type welding method of the invention, a bypass switching element having a forward-blocking function is connected in parallel to output terminals of a charging circuit, and the bypass switching element is brought into a conduction state to allow a backflow current, which is caused to flow by a magnetic energy stored in the inductance of a primary winding or an inductor included in the charging path, to bypass the charging circuit. A discharge switching element is brought into a conduction state after the bypass switching element enters the non-conduction state and recovers the forward-blocking function.

110. Friction stir welding method for steel sheets and method of manufacturing joint

Date: 2018-06-26 | ID: 10005151

Abstract: A friction stir welding method for steel sheets includes inserting a rotating tool into an unwelded portion where two or more steel sheets are overlapped or butted together; moving the rotating tool along portions to be welded while rotating the tool so that a softened portion is formed in the steel sheets by friction heat generated between the rotating tool and the steel sheets, and the steel sheets are welded together by utilizing a plastic flow generated by the softened portion being stirred; and preheating the unwelded portion before welding by the rotating tool by a pair of heating devices disposed over and under the unwelded portion and ahead of the rotating tool in the advancing direction to enable high speed welding without the risk of generation of welding defects and damage to the welding tool.

111. Laser beam welding apparatus and laser beam welding method

Date: 2018-06-26 | ID: 10005153

Abstract: Provided is a laser beam welding apparatus capable of correctly detecting the beginning and the end of one welding point even in remote laser beam welding. The laser beam welding apparatus includes a head which irradiates a workpiece with a laser beam, an optical receiver which receives a reflected light of the laser beam from the workpiece, and a controller. The optical receiver receives only a laser beam and a plasma of the reflected light. The controller determines that one welding point begins when a time during which intensity of the reflected light is larger than or equal to a second set-intensity is longer than or equal to a first set-time, and determines that the one welding point ends when a time during which the intensity of the reflected light is smaller than or equal to a first set-intensity is longer than or equal to a second set-time.

112. Laser welding apparatus and laser welding method

Date: 2018-06-26 | ID: 10005156

Abstract: A laser welding apparatus generates laser by a laser oscillator, converges the laser by a condenser lens, and applies the laser to an upper sheet and a lower sheet superposed together so as to weld the upper sheet and the lower sheet to each other. According to this apparatus, by laser irradiation, a melt pool Y is formed in the upper sheet and the lower sheet superposed together. Furthermore, by laser irradiation, the melt pool Y is caused to flow, and the upper sheet and the lower sheet are welded together.

113. Large transmission gearwheel and process for producing a large transmission gearwheel

Date: 2018-06-26 | ID: 10005161

Abstract: The invention relates to a process for producing a large transmission gearwheel (1; 31; 36) consisting of a plurality of individual components, said process comprising the successive steps of: providing

the individual components, which include at least one hub (2; 32; 37), a disc wheel (3, 4; 18, 19; 22; 24; 27; 33, 34; 38, 39) and a toothed ring (5; 20; 21; 23; 26; 35; 40) produced from case-hardened steel; at least partially mechanically soft machining the individual components; joining the individual components using a beam welding process; case hardening the individual components which have been joined to one another, and hard machining at least the toothed ring (5; 20; 21; 23; 26; 35; 40). The invention furthermore relates to a large transmission gearwheel produced by such a process.

114. Method of manufacturing contoured objects by radio frequency welding and tooling assembly for same

Date: 2018-06-26 | ID: 10005231

Abstract: A method includes compressing a non-dielectric, elastically-deformable component, a wire mesh component, and a dielectric, contoured object between first and second forming tools. Once the components are compressed, radio frequency energy is supplied to the first forming tool, thereby causing a radio frequency electromagnetic field to be generated between the first forming tool and the wire mesh component that results in a contoured weld of the contoured object. A tooling assembly is configured to carry out the method.

115. Assembled house

Date: 2018-06-26 | ID: 10006212

Abstract: An assembled house has a house framework, a roof framework, wall panels and a roof panel. The house framework has multiple beams, columns, and connectors. The roof framework has multiple rafters. Each one of the connectors is mounted securely in the column, and has multiple screw sleeves mounted securely in a concrete body. Thus, the beam can be connected securely to the column by screws screwed into the screw sleeve of the connector. Welding is not required for assembling the house framework on the site of the assembled house, thereby effectively accelerating the assembling. In addition, the beams and the columns are connected without welding, which eliminates the problem that the welded portions may easily rust. Furthermore, the columns, rafters, and the beams are hollow tubes, which can effectively lower the weight of the whole assembled house.

116. Clamping assembly for attaching a grounding conductor to a pipe having a protective coating

Date: 2018-06-26 | ID: 10008785

Abstract: A clamping assembly for attaching a grounding conductor to a pipe having a protective coating

includes an elongate conductive strap and a clamp. The conductive strap is sufficiently long to circumferentially surround the pipe and has longitudinally spaced sharp projections that are sufficient to penetrate the protective coating around the pipe to make an electrical coupling between the strap and a conductive part of the pipe beneath the protective coating. The clamp is coupled to the grounding conductor and clamps the conductive strap to the pipe at a tension sufficient to maintain an electrical connection between the conductive part of the pipe and the grounding conductor without the need for any welding of the grounding conductor to the pipe and without the need for any stripping of the protective coating from the pipe.

117. Spark plug electrode, method for its production, and spark plug

Date: 2018-06-26 | ID: 10008832

Abstract: A spark plug electrode having greater mechanical stability. The spark plug electrode includes a base body and a noble metal pin situated on the base body, the base body and the noble metal pin being connected to each other by a connection zone. The connection zone has at least one first welding seam and one second welding seam.

118. Iron-type golf club head with elevated weight bar and stress-relieving structures

Date: 2018-07-03 | ID: 10010771

Abstract: A golf club head comprising a body, an elevated weight bar, and at least one stiffening member is disclosed herein. The elevated weight bar is disposed within a hollow cavity portion of the body and bridges at least a portion of a bottom section of the body, and the at least one stiffening member is also disposed within the hollow cavity portion, extending from a top line section to bottom section of the body and passing through the elevated weight bar without making contact with the elevated weight bar. The elevated weight bar, which is preferably composed of a higher density material than that of the body, may be formed separately from the rest of the body and then affixed to the body by welding or a mechanical fastener.

119. Device for connecting structural components, in particularly by means of direct screwing, especially flow hole screwing, or by means of friction welding, and method for connecting structural components, in particular by means of direct screwing or friction welding

Date: 2018-07-03 | ID: 10010928

Abstract: A device for direct screwing, in particular flow hole screwing, or friction welding includes a guide element extending in an axial direction and being formed in particular as a guide pipe. A driveshaft is movable in the axial direction, disposed within the guide element and driven by a rotary drive. A feed drive is

disposed and constructed to generate a feed movement and feed force transmitted to the driveshaft, which is achieved by a feed unit. During the process, depending on a process parameter, a switchover is made from a high feed force to a reduced feed force (flow hole screwing) or to a higher feed force (friction welding). In order to enable the most compact and weight-saving embodiment possible, the feed unit is disposed coaxially to the driveshaft within the guide element and transmits the feed force to the driveshaft in the axial direction and centrally.

120. Welding system and communication method for welding system

Date: 2018-07-03 | ID: 10010960

Abstract: A welding system performs communication accurately without provision of a control line between a welding power supply device and a wire feeding device. The welding system includes a welding power supply device, a wire feeding device, a welding torch, and power cables for supplying welding power from the welding power supply device to the welding torch. The system also includes power transfer lines for supplying power for driving a feeding motor disposed in the wire feeding device, so that the welding power supply device and the wire feeding device perform communication via the power transfer lines. The power transfer lines have less superimposed noise compared to the power cables. Accordingly, communication can be performed more accurately than in the case of performing communication via the power cables.

121. Multiple arc welding system controls and methods

Date: 2018-07-03 | ID: 10010961

Abstract: Multiple arc welding systems are provided, along with welding system controllers and control methods, in which a single user selected system setpoint value is used to derive individual machine setpoints for a plurality of welding machines in the multiple arc welding system.

122. Module and system for controlling and recording welding data, and welding wire feeder

Date: 2018-07-03 | ID: 10010962

Abstract: A module for controlling welding parameters and a method for operating a welding wire feeder is disclosed, with the feeder having a motor, a feeding wheel driven by the motor, a control which controls operation of the motor, an operator interface adapted for allowing an operator to input data which is being used by the control.

123. Mount for a welding gun for connecting said welding gun to an arm of a welding robot

Date: 2018-07-03 | ID: 10010964

Abstract: A mount for connecting a welding gun to a welding robot's arm. An articulated joint is provided

between two rigid elements of the mount. The joint includes a sleeve securable to a first element. A first bore is provided on the second element. The sleeve is inserted into the bore. The bore's inner diameter and the sleeve's outer diameter allow the second element to turn with the first bore relative to the sleeve. An expansion element provided in the interior of the sleeve is displaceable in the longitudinal direction of the sleeve. The expansion element has a central opening through which a tensioning bolt is passed. The bolt threadably engages a support element causing expansion of the sleeve, thereby causing the sleeve to seize around the circumference thereof in the bore. The expansion and seizing of the sleeve is neutralized by a release and stop.

124. Electrode for resistance spot welding of dissimilar metals

Date: 2018-07-03 | ID: 10010966

Abstract: A method of spot welding a workpiece stack-up that includes a steel workpiece and an aluminum alloy workpiece involves passing an electrical current through the workpieces and between welding electrodes that are constructed to affect the current density of the electrical current. The welding electrodes, more specifically, are constructed to render the density of the electrical current greater in the steel workpiece than in the aluminum alloy workpiece. This difference in current densities can be accomplished by passing, at least initially, the electrical current between a weld face of the welding electrode in contact with the steel workpiece and a perimeter region of a weld face of the welding electrode in contact with the aluminum alloy workpiece.

125. Friction stir welding tool comprising a retractable guide member and a welding process

Date: 2018-07-03 | ID: 10010968

Abstract: A friction stir welding tool with a base, a rotating friction stir slug mounted in the said base and at least one guide member connected to the said base, the welding tool being adapted to move from upstream to downstream; a welding tool having at least one displacement member of the guide member relative to the said base between at least one guiding position in which the guide member extends in a scout area located downstream and facing the friction stir slug and at least one retracted position in which the guide member is offset from the said scout area.

126. Shaped welding

Date: 2018-07-03 | ID: 10010969

Abstract: A method for friction welding, the method comprising: locating a first workpiece in a recess or aperture of a first tool; bringing a weld face of the first and a weld face of a second workpiece into frictional engagement; and moving the first tool and the second workpiece relative to one another.

127. Fabrication of pipe strings using friction stir welding

Date: 2018-07-03 | ID: 10010970

Abstract: A method of fabrication by friction stir welding (FSW) at an interface between adjoining components such as pipe lengths of a pipeline has layers of different metals on each side. FSW is performed from one side of the adjoining components by effecting relative movement of a first FSW tool along the interface. FSW is performed from an opposite side of the adjoining components by effecting relative movement of a second FSW tool along the interface. Advantageously, FSW is performed simultaneously from both sides of the adjoining components with the FSW tools applying loads in mutual opposition about the adjoining components.

128. Welding method, welding device, and method for manufacturing battery

Date: 2018-07-03 | ID: 10010974

Abstract: Disclosed is a technique for quickly detecting a defect of a portion welded by laser beam welding. Specifically disclosed is a welding step in which a welding device is used, the welding device welding an object to be welded with a pulsed laser. In the welding step, a first photodetector receives only infrared rays having a wavelength allowing detection of a keyhole formed in a molten pool from among infrared rays radiating from a welded portion during the welding of the object, and an analyzer determines quality of the welded portion on the basis of intensity of the infrared rays received by the first photodetector.

129. Laser welding head and process

Date: 2018-07-03 | ID: 10010976

Abstract: A laser welding head is configured to fasten under a focusing lens for focusing the laser and including at least one annular nozzle for injecting a protective gas, and a protective chamber for protecting the focusing lens with a transverse flow of air. The annular nozzle is arranged around an unobstructed optical axis passing through the laser welding head. The chamber for protecting the focusing lens with a transverse flow of air includes air admission and air exhaust in register with the air admission in a plane substantially perpendicular to said optical axis. The laser welding head is configured to be fastened against the focusing lens without any lateral opening between the focusing lens and the protective chamber. The head presents a distance of at least 100 mm between an outlet of the annular nozzle and the protective chamber.

130. Determination of a quality of an aluminum weld

Date: 2018-07-03 | ID: 10010978

Abstract: A method for determining a quality of at least one aluminum weld comprises detecting a force exerted on a workpiece by at least one electrode, and determining at least one factor characterizing the

quality on the basis of a comparison of the detected force with at least one reference value. An aluminum welding method, a welding device set up for a corresponding operation, a welding controller and a computer program are likewise the subject matter of the disclosure.

131. Plastic welding device as well as a plastic welding method therefor

Date: 2018-07-03 | ID: 10011072

Abstract: A plastic welding device for the automatic welding of at least three components comprises at least one first tool, at least one second tool and at least one transfer device. A first component is positionable on the first tool. The first and the second tool are movable relative to each other in order to weld the first component with a second component. The transfer device is movable relative to at least one of the tools and with it at least one third component is automatically feedable to one of the tools. In this manner, the at least one third component is weldable with the compound made up of the first and second components via the first and the second tool or via the first or the second tool in combination with the third tool.

132. Process for forming reinforced rocker panel assembly

Date: 2018-07-03 | ID: 10011312

Abstract: In a preferred embodiment, there is provided a process for forming a reinforced rocker panel assembly, and which includes positioning a reinforcement patch having first and second patch sections in surface-to-surface contact with a blank panel sheet, and welding the first patch section to the blank panel sheet. The process further includes bending both the blank panel sheet and the reinforcement patch along a bend line interposed between the first and second patch sections to form the blank panel sheet into a rocker panel portion having an elongated base section and a longitudinal flange, where the first and second patch sections are in at least partial abutting contact with the base section and the flange. The process also includes welding the second patch section to the flange.

133. Methods, processes, and apparatuses for producing dyed and welded substrates

Date: 2018-07-03 | ID: 10011931

Abstract: A dyeing and welding process may be configured to convert a substrate into a welded substrate having at least some color imparted thereto via a dye and/or coloring agent by applying a process solvent having a dye and/or coloring agent therein to the substrate, wherein the process solvent interrupts one or more intermolecular force between one or more component in the substrate. The substrate may be configured as a natural fiber, such as cellulose, hemicelluloses, and silk. The process solvent may include a binder, such as dissolved biopolymer (e.g., cellulose). After application of a process solvent comprised of a dye and/or coloring agent, the substrate may be exposed to a second application of a process solvent

comprised of a binder, which second application may occur before or after a process temperature/pressure zone, process solvent recovery zone, and/or drying zone.

134. Method and mould for welding the ends of two rail portions

Date: 2018-07-03 | ID: 10011956

Abstract: Method for the aluminothermic welding of rails, involving the steps of: triggering an aluminothermic reaction in a crucible, pouring the metal resulting from said reaction into the mold so as to fill the molding cavity from the rail flange, after filling the cavity, triggering a second aluminothermic reaction above the rail head, and pouring the metal resulting from said reaction into the cavity in the region of the rail head. The mold used in the method is designed to fit over the ends of two rails to form a molding cavity comprising a crucible positioned above the rail head region so that it can be fed with molten metal of the cavity via a secondary passage.

135. Flat roof fastening system

Date: 2018-07-03 | ID: 10011994

Abstract: A flat roof washer and heat welding installation system (1) for securing rigid roofing panels and overlaying membranes to a flat roof truss system comprising one or more wheeled carts having a plurality of screw guns (12) and/or heat welding heads (16) arranged in grid patterns to allow for quick and even installation of screwed washers and heat welds on a flat roof.

136. Large-width/diameter riser segment lowerable through a rotary of a drilling rig

Date: 2018-07-03 | ID: 10012031

Abstract: This disclosure includes auxiliary-line riser segment assemblies (e.g., with isolation units) that are suitable for managed pressure drilling (MPD) and that can be lowered (e.g., when connected to other riser segment assemblies) through a rotary of a drilling rig. Some embodiments are configured to have portions of the auxiliary lines connected (e.g., without welding) below the rotary.

137. Multiple opening counter-flow plate exchanger and method of making

Date: 2018-07-03 | ID: 10012444

Abstract: A multiple opening, counter-flow plate type exchanger is manufactured by repeatedly folding and joining one strip of membrane to form a core composed of a multitude of membrane layers with a plurality of inlet and outlet openings or fluid passageways configured in an alternating counter-flow arrangement. Methods for manufacturing such multiple opening cores are described. An integrated, modular, and stackable plastic manifold that is formed by ultrasonically welding plastic sheet stock is described. Multiple opening

cores comprising water-permeable membranes can be used in a variety of applications, including heat and water vapor exchangers. In particular, they can be incorporated into energy recovery ventilators (ERVs) for exchanging heat and water vapor between air streams directed into and out of buildings, automobiles, or other Industrial processes.

138. Method for manufacturing an inductive conductivity sensor and an inductive conductivity sensor

Date: 2018-07-03 | ID: 10012608

Abstract: A method for manufacturing an inductive conductivity sensor, with coils on both sides of a circuit board are placed surrounding an opening of the circuit board. The circuit board with the coils is inserted into a housing, wherein a sleeve is inserted in the housing through a second opening of the housing through the opening of the circuit board out to a first opening. The first opening, the second opening and the opening of the circuit board are aligned with one another, wherein the sleeve includes a first end section and a second end section and the sleeve is inserted with the first end section first in the housing, and wherein the sleeve is welded with the housing by means of a sonotrode by ultrasonic welding. The first end section of the sleeve is welded with the housing and with a counterpart inserted into the first opening. The invention relates further to an inductive conductivity sensor.

139. Repairing methods of defective pixels having light spots, array substrates and liquid crystal panels

Date: 2018-07-03 | ID: 10012881

Abstract: A repairing method of defective pixels having light spots includes: connecting the pixel electrode and a drain electrode of the of the TFT via a point welding method; cutting off the continuous common electrode to divide the common electrode within the switch area and the common electrode within the pixel area; and removing the pixel electrode arranged above intersections of the common electrode, and connecting the pixel electrode within the switch area and the pixel electrode within pixel area. In addition, an array substrate and a liquid crystal panel are disclosed. By cutting off the common electrode within the pixel area switch area and the pixel area, the defective pixels having light spots are eliminated. In addition, such defective pixels are repaired to be pixels capable of emitting light normally.

140. Welding resource performance goal system and method

Date: 2018-07-03 | ID: 10012962

Abstract: Metal fabrication systems and related equipment may be monitored by collecting and transmitting

parameter data relating to welding operations to a memory and processing system. Goals for selected parameters may be pre-defined, and certain of these may be standard for corresponding welding systems, locations, operations, operators, and so forth. Upon request a web based report is generated and delivered to a user that indicates the system or systems, comparisons of the actual system performance versus the goals, time periods for the comparisons, and so forth.

141. Pouch-type secondary battery including sealed part having recess

Date: 2018-07-03 | ID: 10014497

Abstract: Disclosed herein is a battery cell configured such that an electrode assembly having a positive electrode/separator/negative electrode structure is received in an electrode assembly receiving part formed in a pouch-type battery case in a sealed state together with an electrolyte, wherein the battery case is provided with sealed parts, formed by thermally welding the outer edge of the battery case in the state in which the electrode assembly is received in the battery case together with the electrolyte, one or more recesses are formed in opposite side sealed parts adjacent to an upper end sealed part, at which electrode terminals are located, and/or a lower end sealed part in a state in which the recesses are formed from outsides of the side sealed parts toward a vertical middle axis of the battery cell so as to prevent wrinkles from being formed in the sealed parts of the battery case when the battery cell is bent, and portions of the side sealed parts in which the recesses are located are sealed at a higher sealing temperature than the remaining portions of the side sealed parts.

142. Battery module and electrode tab ultrasonic wave welding method

Date: 2018-07-03 | ID: 10014511

Abstract: Provided are a battery module and an electrode tab ultrasonic wave welding method. The present invention relates to a battery module and an electrode tab ultrasonic wave welding method by forming the electrode tab in a zigzag form in which the electrode tab extending upwardly is bent downwardly and then, again bent upwardly to allow the electrode tab formed in the zigzag form to absorb vibrations even when a welding portion formed in parallel with a battery cell is fused by ultrasonic wave vibrations, thereby minimizing damage to the battery cell.

143. Fuel cell

Date: 2018-07-03 | ID: 10014548

Abstract: A fuel cell includes a power generation unit. A first resin frame member is provided in an outer portion of a first membrane electrode assembly of the power generation unit. The first metal separator has a heating portion subjected to spot heating from a surface of the first metal separator for allowing the first resin

frame member to be melted partially. The first metal separator and the first membrane electrode assembly are welded together by a plurality of welding portions to form a first structural body.

144. Method for manufacturing interphase insulating sheet of rotating electric machine, and electric compressor

Date: 2018-07-03 | ID: 10014756

Abstract: An overlapping portion of an insulating portion formed in an annular shape is held between a workbench having a linear projection and an ultrasonic horn having a circular projection with at least part of the linear projection and of the circular projection opposed to each other and ultrasonically welded. In the ultrasonic welding, even though the ultrasonic horn under ultrasonic vibration rotates on the overlapping portion of the insulating portion, the area in the overlapping portion held between the linear projection and the circular projection with at least part of the linear projection and of the circular projection opposed to each other is not reduced after ultrasonic vibration is applied to the ultrasonic horn.

145. Welding torch detector and welding robot system

Date: 2018-07-10 | ID: 10016834

Abstract: A welding torch detector including an imaging unit capturing images of a welding torch and welding wire from a plurality of directions to acquire image signals, an image recognition unit recognizing welding wire images and welding torch images based on the image signals acquired, a setting unit setting a target point corresponding to a target position of the welding wire on the welding wire images recognized, a position detection unit detecting a position of the target point in a three-dimensional space based on the welding wire images recognized, and an inclination detection unit detecting an inclination of the welding torch in the three-dimensional space based on the welding torch images recognized.

146. Sonotrode and anvil energy director grids for narrow/complex ultrasonic welds of improved durability

Date: 2018-07-10 | ID: 10016836

Abstract: A specially designed sonotrode and anvil are adapted to be used in combination for ultrasonic welding of work pieces, to produce a narrower weld region, but one exhibiting greater durability, thereby permitting use of less packaging material. The contact surfaces comprise a surface of the anvil having a plurality of energy directors, where the plurality of energy directors are arranged into a three-dimensional grid pattern to be capable of distributed vibration-transmissive contact. The energy directors may comprise a series of plateau surfaces being regularly spaced apart from each other in a first direction, and in a second

direction that is orthogonal to the first direction, to form the grid pattern. The rectangular-shaped plateaus may be spaced apart by valleys. Engagement of the energy directors of the anvil with the corresponding surface of the sonotrode may cause minor elastic deformation of work pieces positioned therebetween prior to ultrasonic welding.

147. Method of joining heat-treatable aluminum alloy members by friction stir welding

Date: 2018-07-10 | ID: 10016837

Abstract: A method of joining heat-treatable aluminum alloy members by friction stir welding, including the steps of: a T4-treatment-performing step of performing a T4 treatment on heat-treatable aluminum alloy members so as to impart T4 temper to the heat-treatable aluminum alloy members; a joining step of joining the heat-treatable aluminum alloy members with T4 temper by friction stir welding to provide a joined product; and a reversion-treatment-performing step of performing a reversion treatment, the reversion-treatment-performing step being carried out prior to or after the joining step.

148. Friction stir welding tool

Date: 2018-07-10 | ID: 10016838

Abstract: A friction stir welding tool attachable to a spindle of a machine tool includes: a shank connected to the spindle; a chuck connected to the shank through a heat insulating portion; a welding tool connected to the chuck and usable for friction stir welding; and a cooling jacket provided on a circumferential surface of the chuck. The cooling jacket is provided with a refrigerant path for delivering a refrigerant.

149. Friction stir welding tool and a method of fabricating the same

Date: 2018-07-10 | ID: 10016839

Abstract: A friction stir welding tool comprising a composite of a tungsten-rhenium alloy and hafnium carbide particles, wherein a crystallite size of the tungsten-rhenium alloy is no more than 100 nm, wherein the hafnium carbide particles are dispersed within the tungsten-rhenium alloy, a method of fabricating the friction stir welding tool, and a method of friction stir welding a metal joint using the tool. Various embodiments of the friction stir welding tool, the method of fabricating the tool, and the method of friction stir welding using the tool are provided.

150. Fabrication of pipe strings using friction stir welding

Date: 2018-07-10 | ID: 10016840

Abstract: A method of fabricating a metal pipeline by friction stir welding (FSW) along a circumferential interface includes spinning first and second FSW tools about respective axes of rotation in contact with a pipe

wall to heat, plasticize, and stir respective zones of plasticized metal at the interface. The zone of plasticized metal produced by the second FSW tool extends deeper into the pipe wall than the zone of plasticized metal produced by the first FSW tool. Relative circumferential movement of the FSW tools along the interface is controlled such that the second FSW tool following the first FSW tool enters the zone of plasticized metal produced by the first FSW tool while the metal in that zone remains plastic.

151. Method and device for cutting wound hoses

Date: 2018-07-10 | ID: 10016847

Abstract: A method for cutting a wound hose (1), made from mutually engaging windings (11, 12, 13, 14) of a metallic tape (2), with the wound hose (1) being welded in a predetermined axial area (10) and then cut within the area (10) essentially in a plane (6) extending radially, with the wound hose (1) being axially compressed in the predetermined area prior to welding such that in the area (10) a mutual contacting of the windings (11, 12, 13, 14) occurs. The welding is performed along a predetermined number of windings (11-14) in the area (10), and the welding energy required for welding the windings is introduced via the area of the winding hose into it. Additionally, an accordingly produced wound hose (1) is provided and a device suitable for its production.

152. Method for welding a weld-on element onto a counterpart

Date: 2018-07-10 | ID: 10016849

Abstract: A method for welding a weld-on element onto a component is proposed, comprising at least the step that, before the welding process, at least one of the parts being connected is wetted with a wetting agent over the full area and uniformly in layer thickness in a welding region.

153. Systems and methods for welding electrodes

Date: 2018-07-10 | ID: 10016850

Abstract: The invention relates generally to welding and, more specifically, to welding wires for arc welding, such as Gas Metal Arc Welding (GMAW) or Flux Core Arc Welding (FCAW). In one embodiment, a method of manufacturing a tubular welding wire includes disposing a core within a metallic sheath. Further, the core includes an organic stabilizer component, in which the organic stabilizer component is an alkali metal or alkali earth metal salt of an organic molecule or an organic polymer.

154. Deep trailing edge repair

Date: 2018-07-10 | ID: 10016853

Abstract: A method for repairing a blade tip of a turbine blade based on welding below and above a

designated depth recommended for repair of turbine blades. A damaged portion of the turbine blade is inspected to identify a standard cut portion and an angled cut portion. The standard cut portion is damaged above a standard cut line and the angled cut portion is damaged below the standard cut line. The damaged portion of the turbine blade is removed. The standard cut portion is removed using a first removal process and the angled cut portion is removed using a second removal process. The angled cut portion is built up with a first weld repair process. The angled cut portion is built up to the standard cut portion. The standard cut portion and the angled cut portion are built up with a second weld repair process.

155. Method of removing ineffective portion of flat heat pipe

Date: 2018-07-10 | ID: 10016857

Abstract: A method of removing ineffective portion of flat heat pipe is disclosed. The method includes the steps of providing a flat heat pipe; flattening out at least one wick-free flatten-out zone of the flat heat pipe and then sealing the flattened flatten-out zone by welding; and cutting off a cut-away section but reserving a remainder section of the flattened and sealed flatten-out zone, so that an ineffective portion is removed from the flat heat pipe. After being processed with the above method, the flat heat pipe can have effectively increased heat transfer efficiency and save a lot of space.

156. Package formed with a stepped sonotrode/anvil combination having energy director grids for narrow ultrasonic welds of improved durability

Date: 2018-07-10 | ID: 10017287

Abstract: A sonotrode and anvil are adapted for ultrasonic welding of work pieces, to produce a narrower weld region that exhibits greater durability, permitting use of less material per package. The horn-to-anvil contact is through a plurality of energy directors arranged into a three-dimensional grid pattern to be capable of distributed vibration-transmissive contact. The energy directors include a series of plateau surfaces regularly spaced apart in a first direction, and in a second direction that is orthogonal to the first direction, to form the grid pattern. The energy directors of the horn are configured to interlock with the energy directors of the anvil. The rectangular-shaped plateaus are spaced apart by angled side-surfaces that form valleys. A stepped transition to a corresponding region of reduced height for the energy directors of the sonotrode and anvil may form a cosmetic seal region with a lesser integrity, in addition to the main barrier seal.

157. Downhole distributed sensor arrays for measuring at least one of pressure and temperature, downhole distributed sensor arrays including at least one weld joint, and methods of forming sensors arrays for downhole use including welding

Date: 2018-07-10 | ID: 10018033

Abstract: A downhole sensor array includes sensor housings, and each sensor housing contains one or more of a pressure sensor and a temperature sensor. Cable segments connect the sensor housings. A weld joint bonds a sensor housing to a jacket of a cable segment, and a conductor of the cable segment and the jacket of the cable segment may be separated by a void proximate the weld joint. Methods relate to forming such sensor arrays.

158. Kelvin contact assembly in a testing apparatus for integrated circuits

Date: 2018-07-10 | ID: 10018653

Abstract: An electrical Kelvin contact assembly for testing IC testing apparatus that uses an assembly design that reduces the tolerance to a near negligible range. The assembly does not use any screws, dowel pins, adhesives or welding to fasten the electrical contacts to the housing. The design of the assembly uses rows of contacts with specially designed protrusions that sit snugly in openings located on three plate-like layers. These layers contain the contacts in the horizontal plane by securing the protrusions in the opening, as well as in the vertical plane by means of a sandwich between three separate layers. A second contact is slid into back slits formed by the three layers.

159. Disk device and method of manufacturing disk device

Date: 2018-07-10 | ID: 10020027

Abstract: According to one embodiment, a disk device includes a disk-shaped recording medium, a head which processes data on the recording medium, and a housing accommodating the recording medium and the head. The housing includes a base with a side wall, and a cover having a welded portion welded to the side wall by laser welding. The welded portion includes a first welded portion welded to a first region of the side wall and having weld beads with a first shape, and a second welded portion welded to a second region of the side wall and having welded beads with a second shape different from the first shape.

160. Nuclear reactor nozzle repair method

Date: 2018-07-10 | ID: 10020080

Abstract: A nozzle repair method and a nuclear reactor vessel include: removing a trepanning portion (208) as a connection portion with respect to an in-core instrumentation cylinder (204) in a groove-welding portion (206); removing the in-core instrumentation cylinder (204) from a semi-spherical portion (66) as a lower end plate; forming a surface buttered-welding portion (210) by buttered-welding the surface of the groove-welding portion (206); forming a welding groove (212) by grooving the surface buttered-welding portion (210); inserting a new in-core instrumentation cylinder (204A) provided with a circumferential groove portion (204f)

outside an instrumentation equipment guide passage (204d) into an attachment hole (203); and fixing the new in-core instrumentation cylinder (204A) by groove-welding the welding groove (212). Accordingly, since the nozzle welding area is suppressed to a predetermined range, the workability of the repair is improved.

161. Three-dimensional network aluminum porous body, electrode using the aluminum porous body, and nonaqueous electrolyte battery, capacitor and lithium-ion capacitor with nonaqueous electrolytic solution, each using the electrode

Date: 2018-07-10 | ID: 10020126

Abstract: A three-dimensional network aluminum porous body which enables to produce an electrode continuously, an electrode using the aluminum porous body, and a method for producing the electrode is disclosed. A long sheet-shaped three-dimensional network aluminum porous body is provided to be used as a base material in a method for producing an electrode including at least winding off, a thickness adjustment step, a lead welding step, an active material filling step, a drying step, a compressing step, a cutting step and winding-up, wherein the three-dimensional network aluminum porous body has a tensile strength of 0.2 MPa or more and 5 MPa or less.

162. Electrical connection element for fastening, in particular soldering, to a glass pane, and ribbon litz wire mixed braid

Date: 2018-07-10 | ID: 10020597

Abstract: An electrical connection element for fastening, in particular soldering, to a glass pane and conductive sections present there, in particular to a vehicle pane, consisting of a solder connection part and a ribbon litz wire section fixed to the solder connection part by welding. The ribbon litz wire section consists of a mixed braid which, in addition to single wires made of copper or a copper alloy, contains single wires made of a material which has a melting temperature that corresponds substantially to the melting temperature of the solder connection part or has a higher melting temperature than the latter.

163. Face protector

Date: 2018-07-17 | ID: 10022273

Abstract: Provided is a face protector provided with a transparent film sheet to protect a viewing window of any one working mask selected from a safety face shield or a welding helmet. One or more transparent film sheets are inserted into a gap between the surface of the upper part of the viewing window and the bent inner surface of an upper support brim and thus combined with the surface of the viewing window, thereby preventing contaminants, paints, slag or metal particles, which may contaminate the viewing window during a

working process, from being attached to the viewing window, securing a worker's clear view to increase worker safety, and to greatly extending the working mask.

164. Short arc welding system

Date: 2018-07-17 | ID: 10022813

Abstract: A system for controlling a weld-current in an arc welding apparatus for short arc welding comprising a current regulator included in a voltage feedback loop from a power supply to a welding electrode and a ramp generator arranged to provide current ramps during a short circuit phase at said welding electrode.

165. Method and welding apparatus for the determination of the strength of the welding current to be used in the welding of container bodies

Date: 2018-07-17 | ID: 10022814

Abstract: For the determination of the welding current to be used for the resistance welding of the overlap seam of container bodies, welding with a test body is carried out with a changing strength of welding current which in the test body produces a varying welding of the seam. The current strength varies from welding of this seam with a too high temperature to welding with a too low temperature. Along with this the welding current strength used in the welding is determined so that it is further determined at which point of the seam the welding has been accomplished and with what strength of welding current. By means of a mechanical and/or optical investigation of the welded seam it can then be easily determined where the seam has been correctly welded for the series production of container bodies from the same sheet material as the test bodies. When such a point or such a region of the seam is known the welding current used in the test welding can be taken as the welding current for serial production.

166. Drawback valve systems and methods for coolant drawback

Date: 2018-07-17 | ID: 10022815

Abstract: A first electrode coolant path is configured to cool a first welding electrode by liquid coolant flowing from a supply path through the first electrode coolant path to a return path. A second electrode coolant path is configured to cool a second welding electrode by liquid coolant flowing from the supply path through the second electrode coolant path to the return path. Three or more valves are configured to stop or reduce liquid coolant flow through the first or second electrode coolant path and configured to stop or reduce liquid coolant backflow from the return path when the first or second welding electrode is at least partially detached. At least one valve is coupled in the first or second electrode coolant path. A drawback apparatus generates a suction force to draw liquid coolant away from a gap formed when the first or second welding electrode is at least partially detached.

167. Friction welding method

Date: 2018-07-17 | ID: 10022816

Abstract: The present invention is a friction welding method for friction welding of metal members characterized by starting friction welding in a state inserting an insert material between surfaces of the metal members facing each other, wherein the insert material consists of a metal having a melting point (centigrade temperature) of 60 to 80% of the melting point (centigrade temperature) of the metal members, melting the insert material, and pushing the melted insert material out from between the pair of metal members. Due to this, the adverse effects due to high temperature heating like in the past are eliminated while a quality of joint equal to or better than the past is obtained in a short time period.

168. Friction stir welding tool including a dovetail connection

Date: 2018-07-17 | ID: 10022817

Abstract: A tool for friction stir welding includes a tool part, a shank part and a cap part. The tool part and the shank part have a hexagonal frustum-shaped concave section and a hexagonal frustum-shaped convex section to enable movement of the tool part with respect to the shank part in a direction parallel to an axis of rotation while movement of the tool part with respect to the shank part in a direction around the axis of rotation is restricted, by the hexagonal frustum-shaped concave section and the hexagonal frustum-shaped convex section of the tool part and the shank part are fitted to each other. After the hexagonal frustum-shaped concave section and the hexagonal frustum-shaped convex section are fitted to each other, by the tool part and the shank part being covered by the cap part, the tool part is fixed to the shank part.

169. Methods and systems for coherent imaging and feedback control for modification of materials

Date: 2018-07-17 | ID: 10022818

Abstract: Methods and systems are provided for using optical interferometry in the context of material modification processes such as surgical laser or welding applications. An imaging optical source that produces imaging light. A feedback controller controls at least one processing parameter of the material modification process based on an interferometry output generated using the imaging light. A method of processing interferograms is provided based on homodyne filtering. A method of generating a record of a material modification process using an interferometry output is provided.

170. Safety confinement equipment for laser radiation

Date: 2018-07-17 | ID: 10022819

Abstract: Safety confinement equipment for laser radiation includes a safety confinement enclosure having two laterally opposite openings through which at least one metal strip can pass, the enclosure including first and second jaw devices for clamping the strip disposed on a path of travel of the strip between the two openings, the jaws being transversely disposed at least over the width of the strip. A cutting or welding equipment head emits a beam of laser radiation to be confined, in which the beam can be moved transversely between a pair of jaws disposed opposite each other on one side of a surface of the strip. In the position in which the jaws clamp the strip, the engagement of the jaws on the surfaces of the strip induces the formation of a physical screen against the laser radiation, which prevents the radiation from passing through the two openings of the chamber.

171. Thick steel sheet having excellent CTOD properties in multilayer welded joints, and manufacturing method for thick steel sheet

Date: 2018-07-17 | ID: 10023946

Abstract: Provided are a thick steel plate with which a welded joint having good CTOD property is formed by low-to-medium heat input multipass welding and a method for producing the thick steel plate. The steel plate has a composition containing, by mass, C: 0.03% to 0.10%, Si: 0.5% or less, Mn: 1.0% to 2.0%, P: 0.015% or less, S: 0.0005% to 0.0050%, Al: 0.005% to 0.060%, Ni: 0.5% to 2.0%, Ti: 0.005% to 0.030%, N: 0.0015% to 0.0065%, O: 0.0010% to 0.0050%, Ca: 0.0005% to 0.0060%, and, as needed, one or more elements such as Cu. Ti/N, Ceq, Pcm, and ACR each fall within the specific range. The effective crystal grain size of the base metal at the center of the plate in the thickness direction is 20 μ m or less. A specific amount of a composite inclusion including a sulfide containing Ca and Mn and an oxide containing Al having an equivalent circular diameter of 0.1 μ m or more is present at the $\frac{1}{4}$ -thickness position and the $\frac{1}{2}$ -thickness position of the plate. The steel having the above-described composition is heated to a specific temperature, hot rolled, and cooled.

172. In situ tip repair of an airfoil tip in a gas turbine engine via frictional welding

Date: 2018-07-17 | ID: 10024163

Abstract: Methods for material build-up on a tip of a blade of a gas turbine engine are provided. The method can include inserting a material supply and an inflatable bladder between the tip and a shroud such that the material supply is exposed to the tip and the inflatable bladder is positioned between the material supply and a shroud, inflating the inflatable bladder to force contact between the material supply and the tip, and causing relative movement between the material supply and the tip. The relative movement, in combination with the radial biased contact between the material supply and the tip, creates heat through friction. As such, the relative movement can frictionally weld new material from the material supply onto the tip of the blade. For

example, the heat created can be sufficient to melt the surface of the material supply to transfer material from the material supply to the tip.

173. Fan assembly

Date: 2018-07-17 | ID: 10024329

Abstract: A fan assembly in which all of the major structural components of the assembly are mechanically fastened together by non-welding means, such as mechanical fasteners, is disclosed. The disclosure also relates to a fan assembly in which the major structural components have planar segments separated by bend lines that approximate a curved shape, and that can be formed, for example, by a press brake machine. Such a construction can eliminate the necessity for rolling, welding, and painting of the structural components of the fan assembly.

174. Hose coupling

Date: 2018-07-17 | ID: 10024473

Abstract: A device for releasable fixed holding of a welding wire in a welding wire guide is described. This device is characterized in that the welding wire guide includes a cage for radially displaceable braking bodies, wherein a locking cone surrounds the braking bodies, and that, of the two cooperating functional elements, formed on the one hand by the welding wire guide and on the other hand by the locking cone, one is mounted in a non-displaceable manner in a holder and the other is mounted to be axially displaceable against a spring force with respect to the non-displaceable functional element.

175. Condensing water heater with dielectrically insulated secondary flue

Date: 2018-07-17 | ID: 10024574

Abstract: A high efficiency condensing flue gas-fired water heater is provided with a secondary tubular flue mounted inside the water tank and secured thereto by dielectric connectors to electrically isolate the secondary tubular flue from the tank. The secondary tubular flue has an intermediate helical section and opposed connecting end sections which each form a part of the dielectric connectors. The connectors do not require any welding for its installation to the tank and a compression nut and dielectric insulators provide for a leak proof and electrically isolated connection. The method of securing the secondary tubular flue is also described.

176. Heat energy sensing and analysis for welding processes

Date: 2018-07-17 | ID: 10024735

Abstract: A series of time-sequenced heat energy data arrays or data stream sets of a weld process region

are processed by a weld data array or data stream processing system to produce a heat energy data set output that is related to weld process region features or weld process region heat energy data. The heat energy data set output can be displayed to a system user and modified by system user input to the weld data array or data stream processing system; alternatively, or in combination, the system user output and input, the heat energy data set output, or data produced from the heat energy data set output by the weld data array or data stream processing system, can be transmitted to a weld process controller to adjust parameters in the weld process responsive to the output of the weld data array or data stream processing system.

177. Temperature measurement method, and temperature measurement device

Date: 2018-07-17 | ID: 10024737

Abstract: In order to evaluate the cooling performance of cutting oil, cooling water, and the like more accurately than conventional means, there are provided a temperature measurement method and a temperature measurement device that can actually ascertain the temperature of a rotating tool such as a cutting tool during cutting or welding torch during welding in real time. The temperature measurement method uses a rotating holder that is rotatable around a rotating axis and has a hollow hole extending from a front end to a rear end along the rotating axis, and a rotating tool that is connected to the rotating holder and has a coaxial through hole with the hollow hole. In the temperature measurement method, a step of attaching a temperature measurement unit near the through hole of the rotating tool, a step of measuring the temperature of the rotating tool that rotates coaxially with the rotating holder using the temperature measurement unit, and a step of receiving a measurement result of the temperature measurement unit by an electronic substrate are performed in this order.

178. Nuclear reactor nozzle repair method

Date: 2018-07-17 | ID: 10026512

Abstract: A nozzle repair method and a nuclear reactor vessel include: removing a trepanning portion (208) as a connection portion with respect to an in-core instrumentation cylinder (204) in a groove-welding portion (206); removing the in-core instrumentation cylinder (204) from a lower end plate (66); forming a plug attachment opening (211) by removing the groove-welding portion (206); applying a pressing load to the lower end plate (66) by attaching a plug (212) to the plug attachment opening (211); and welding and fixing the plug (212) attached to the plug attachment opening (211). Accordingly, since a repair is easily performed, it is possible to improve the workability and to decrease a repair cost.

179. Electricity storage device

Date: 2018-07-17 | ID: 10026946

Abstract: This electricity storage device comprises an electrode assembly, a case, an electrode terminal and a conductive member. The electrode assembly comprises a positive electrode, a negative electrode and a separator. The separator comprises a first separator part and a second separator part. The separator has a container part that contains portions of the positive electrode other than a tab. The separator has a welded part and a tab facing part. The welded part has facing parts that are positioned on both sides of the tab facing part. The facing parts face the electrode terminal with the conductive member being interposed therebetween. The facing parts are larger in shrinkage amount associated with thermal welding than the other portions of the welded part.

180. Pressure welding device with a measuring device, measuring in a contactless manner, for detecting the surface quality, the true running and/or the axial runout in a front welding area

Date: 2018-07-24 | ID: 10029329

Abstract: A pressure welding device (1), especially a friction welding device, holds workpiece parts (2, 4) in clamping devices (6, 7) and axially moves the workpieces towards each other by means of a feed device (21). The pressure welding device (1) has a measuring device (8, 13), measuring in a contactless manner. The measuring device detects the surface condition and/or the concentricity and/or true running and/or the axial runout and/or radial runout in a front welding region (3, 5) of a workpiece part (2, 4).

181. Apparatus and method for monitoring laser welding bead

Date: 2018-07-24 | ID: 10029334

Abstract: An apparatus for monitoring a laser welding bead irradiates a laser to a surface of a welding bead when welding with a laser welding machine, collects a signal reflected from the surface of the welding bead as an image signal, and then extracts at least one feature variable of a bead shape using the collected image signal. Then, the apparatus for monitoring the laser welding bead determines welding defects using the at least one feature variable, and controls an operation of the laser welding machine according to whether or not the welding defects are generated.

182. Method of manufacturing heat dissipation device

Date: 2018-07-24 | ID: 10029337

Abstract: A method of manufacturing heat dissipation device includes the steps of providing at least one heat transfer unit; further providing at least one frame for connecting to the at least one heat transfer unit; and spot welding the heat transfer unit to the frame at a junction formed therebetween, so that the heat transfer unit is

fixedly attached to the frame. With the above method, the steps for assembling the heat transfer unit to the frame are effectively reduced, and the material and production costs for applying adhesive agent or adhesive tape are also saved.

183. Welding wood creeper recliner

Date: 2018-07-24 | ID: 10029362

Abstract: The welding Wood Creeper Recliner is designed for the welding field, focusing on the overhead welding. This creeper comprise on the frame, the back-receiving and the sitting part which are made of wood allowing the use of the electric equipment without the risk of electrocution as would be with metal material. The frame it is the base of the creeper, the seating-part it is mounted on top of the frame which it is elevated to prevent the user to slide forward and the back-receiving has a reclining mechanic system designed to lounge to seven position depending on height of the project. Additionally this wood creeper has a four caster wheels allowing the user to move without stopping the welding procedure.

184. Welding apparatus and welding method

Date: 2018-07-24 | ID: 10029408

Abstract: A compact pressing body with a pressing surface smaller in area than a welding range welds together sheet-like members over the whole area of the welding range by pressing the sheet-like members being reliably moved in a direction substantially orthogonal to a pressing direction of the pressing body.

185. Transverse sonotrode design for ultrasonic welding

Date: 2018-07-24 | ID: 10029409

Abstract: An ultrasonic welding system that includes an ultrasonic transducer configured to convert electricity to generate ultrasonic waves, wherein the waves propagate along a first direction from the transducer; and a sonotrode that includes a single-component body having nodal and anti-nodal regions, and configured to propagate ultrasonic waves received at a nodal region along a first direction; a plurality of redirecting features formed in the body and configured to cause received ultrasonic waves propagating along the first direction to propagate along a second direction, perpendicular to the first direction, upon encountering one or more of the redirecting features; wherein the body is further configured to stretch and compress along the second direction based on corresponding peaks and valleys of the waves propagating along the second direction; and at least one ultrasonic welding surface at an anti-nodal region of the body configured to oscillate based on the stretching and compressing, wherein opposing ends of the sonotrode comprise the nodal region, at least one of the opposing ends configured to receive the ultrasonic waves.

186. Infrared welded exterior panel assembly and process of making same

Date: 2018-07-24 | ID: 10029410

Abstract: An exterior body panel assembly having a Class A painted surface, mold-in color or non-Class A surface, and process of infrared welding components of the assembly. Panels of the assembly are placed on a nesting structure and the inside half of the structures are brought together with the other for a fit check. Panels are separated and an infrared heating fixture then heats the various areas to be heated on the panels. The areas on the panels are heated depending on the thicknesses of the parts at each area and surface geometries to be welded. The parts are immediately clamped back together under pressure for joining and cooling of the joined surfaces in the clamped arrangement.

187. Irrigation pipe and method of fabrication

Date: 2018-07-24 | ID: 10030797

Abstract: An irrigation pipe and method of fabrication that utilizes a pipe that is made of a durable material, e.g., stainless steel or aluminum. During fabrication, the pipe is equipped with a plurality of components, i.e., a flange assembly, a truss mount, and an outlet, without drilling, welding, or the like. In this manner, a method of fabrication is provided that enables a plurality of components to be assembled to the pipe without compromising the integrity of the pipe material or treated surface so that galvanizing or painting is not required after the plurality of components have been fitted to the pipe.

188. Micro heat exchangers for controlling temperature of workpieces being joined by welding

Date: 2018-07-24 | ID: 10031499

Abstract: A thermal-management system, for use in controlling temperature of a first workpiece of workpieces being joined by welding. The system includes a micro heat exchanger including a heat-transfer fluid tube extending between an inlet and an outlet. The system in some implementations has a body and the inlet and outlet are connected to the body. The heat-transfer fluid tube is configured to channel heat-transfer fluid, such as a nanofluid, to heat or cool the workpiece(s). The heat-transfer fluid is configured to cool or heat at least the first workpiece when the heat-transfer fluid is channeled through the heat-transfer fluid-tube section in operation of the thermal-management system. The technology further includes methods and hardware-based controlling apparatus for using the micro heat exchanger to cool or heat the workpieces.

189. Augmented and mediated reality welding helmet systems

Date: 2018-07-24 | ID: 10032388

Abstract: A welding helmet system is provided. The welding helmet system includes a protective shell and a welding display system. The welding display system is configured to be removably coupled to the protective shell. The welding display system is configured to receive data from a sensor, and to display a welding metric derived from the sensor via the image generation system.

190. Method of manufacturing solid electrolytic capacitor, and solid electrolytic capacitor

Date: 2018-07-24 | ID: 10032566

Abstract: A method of manufacturing a solid electrolytic capacitor wherein a resistance increasing process is performed on at least one of a bonding portion of an anode lead terminal and a bonding portion of an anode in order to increase contact resistance between the anode lead terminal and the anode. Thereafter, the anode and the anode lead terminal are welded to each other by resistance welding at the bonding portions.

191. Image sensor structure and packaging method thereof

Date: 2018-07-24 | ID: 10032824

Abstract: The present invention discloses a CMOS image sensor structure and packaging method thereof. The method includes the following steps: providing an image sensor chip and a transparent package substrate that is ground and cut, the front side of the image sensor chip being provided with an image sensing region and a pad region surrounding the image sensing region; bonding a first end of a metal wire onto the pad, the other end being suspended outside the image sensor chip; bonding the transparent package substrate and the image sensor chip having the metal wire to form an image sensor package, which can be assembled by surface mount technology (SMT) or pressure welding via the exposed and suspended metal wire. In the present invention, an auxiliary substrate is optionally used and an optical glass is directly fixed to the image sensor chip, and the image sensor chip is directly connected to a circuit board. The image sensor products using this packaging method have better performance, reliability, and ultra-low packaging costs.

192. Solar cell having Ti- or Ta-containing thermal and diffusion barrier layer for foil-based metallization

Date: 2018-07-24 | ID: 10032942

Abstract: Methods of fabricating solar cells using a metal-containing thermal and diffusion barrier layer in foil-based metallization approaches, and the resulting solar cells, are described. For example, a method of fabricating a solar cell includes forming a plurality of semiconductor regions in or above a substrate. The method also includes forming a metal-containing thermal and diffusion barrier layer above the plurality of semiconductor regions. The method also includes forming a metal seed layer on the metal-containing thermal

and diffusion barrier layer. The method also includes forming a metal conductor layer on the metal seed layer. The method also includes laser welding the metal conductor layer to the metal seed layer. The metal-containing thermal and diffusion barrier layer protects the plurality of semiconductor regions during the laser welding.

193. Prismatic battery having electrolyte injection-hole capable of providing excellent sealing ability

Date: 2018-07-24 | ID: 10033028

Abstract: Disclosed herein is a secondary battery having an electrode assembly mounted in a prismatic container, wherein the inside of an electrolyte injection hole formed in a base plate mounted to an open upper end of the prismatic container includes an upper part having a chamfered structure in which the diameter of the electrolyte injection hole is gradually decreased downward and a lower part having a non-chamfered structure continuously formed from the chamfered structure, and, when a sealing member is pressed into the electrolyte injection hole, the sealing member deformed into a shape corresponding to the electrolyte injection hole comes into tight contact with the chamfered structure due to shear stress between the chamfered structure and the sealing member and forms a sealed state due to frictional interaction between the non-chamfered structure and the sealing member. Consequently, it is possible to reduce a defect rate of secondary batteries and to improve sealability of the electrolyte injection hole without welding.

194. Connector

Date: 2018-07-24 | ID: 10033129

Abstract: It is aimed to make connectors accommodating wires conductive to each other without using terminals. Connectors each including wires (2) formed with core exposed portions (2B) by removing parts of coatings (2A) and a connector housing (1) for accommodating the wires (2) while exposing the core exposed portions (2B) in an opening (4) are stacked with the openings (4) facing each other. An operation hole (5) is formed on a side opposite to the opening (4) in the both connector housings (1). Electrodes (9) of a welding machine are inserted through the both operation holes (5) and the core exposed portions (2B) corresponding in a stacking direction are welded to each other. In this way, the wires (2) can be directly connected between the both connectors without using terminals.

195. Circuit board secured to battery cell using a circuit board through hole and methods for welding the circuit board

Date: 2018-07-24 | ID: 10034373

Abstract: An electronic device having a circuit board and a battery is disclosed. The circuit board may include a through hole and an electrical pad surrounding the through hole. In order to electrically couple the circuit board to the battery, and in particular, an electrode of the battery, a tab (or plaque) is placed between the electrical pad and the electrode. The tab electrically couples with the electrical pad by a soldering operation. To couple (electrically and mechanically) the tab with the electrode, a welding operation is used. The welding operation may include a laser weld providing thermal energy through a laser beam. In this regard, the laser beam passes through the through hole, thereby (partially) melting the tab and forming a weld between the tab and the electrode. Accordingly, the tab covers the through hole such that the tab is positioned to receive the laser beam.

196. Sanitary sheath for a syringe for insemination by straw and its method of manufacture

Date: 2018-07-31 | ID: 10034732

Abstract: The sheath (30) comprises a tube (31) and an end piece (32) that comprises a foot (33) introduced into an end portion of the tube (31), and a head (34) arranged in the extension of the tube (31). The foot (33) comprises, on the outer surface (40) thereof, a plurality of annular ribs (41-44) facing the inner surface (45) of the tube (31). The head (34) comprises a shoulder (38) facing the section (39) of the tube (31), projecting over the root of the foot (33). The end piece (32) and the tube (31) are attached to the periphery of at least one of said annular ribs exclusively by intrinsic welding. The method comprises the step of carrying out a peripheral tightening of the outer surface (37) of the tube on a level with the ribs (41-44), and the step of applying a sonotrode to the outer surface (35-36) of the head (34).

197. Golf club head

Date: 2018-07-31 | ID: 10035050

Abstract: A head 2 includes a face 4, a crown 6, and a sole 8. At least a part of the crown 6 and/or at least a part of the sole 8 is formed by a clad material. The clad material is joined to an adjacent portion brought into contact with a peripheral edge of the clad material. The clad material includes a first layer s1 and a second layer s2. The first layer s1 is the outermost layer. The first layer s1 is welded to the adjacent portion. The second layer s2 does not have an affinity for welding with the adjacent portion.

198. Method of forming fillet arc welded joint and fillet arc welded joint

Date: 2018-07-31 | ID: 10035208

Abstract: Stiffening beads (55A, 55B) are formed in turned portions in a region of a fillet bead (53) formed in a single stroke manner. At this time, it is set in such a manner that welding start positions of the stiffening beads (55A, 55B) are in a region near the fillet bead and do not exist independently without mixing with other

weld beads.

199. Adaptive GMAW short circuit frequency control

Date: 2018-07-31 | ID: 10035209

Abstract: A welding apparatus having a waveform compensation device, a power section coupled to the waveform compensation device which generates a welding waveform in accordance with a signal from the waveform compensation device, and a frequency detection device which detects at least one of a voltage, current and power of a welding arc and determines a shorting frequency of the arc. The waveform compensation device adjusts at least a portion of the welding waveform based on an output from the frequency detection device.

200. Tandem hot-wire systems

Date: 2018-07-31 | ID: 10035211

Abstract: A system and method is provided. The system includes a first power supply that outputs a welding current that includes welding pulse currents and a background welding current. The system also includes a second power supply that outputs a heating current that includes first heating pulse currents at a first polarity and second heating pulse currents at an opposite polarity. The system also includes a controller that synchronizes at least one of the first heating pulse currents and the second heating pulse currents with at least one of the welding pulse currents and the background current to influence a position of an arc relative to a molten puddle based on magnetic fields created by the welding current and the heating current.