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(54) **PRESSURIZATION JIG FOR PRESSURIZING BUS BAR AND BATTERY MODULE MANUFACTURING SYSTEM COMPRISING SAME**

DRUCKBEAUFSCHLAGUNGSVORRICHTUNG ZUR DRUCKBEAUFSCHLAGUNG EINER SAMMELSCHIENE UND HERSTELLUNGSVERFAHREN FÜR BATTERIEMODUL DAMIT

GABARIT DE COMPRESSION POUR COMPRESSION DE BARRE OMNIBUS ET SYSTÈME DE FABRICATION DE MODULE DE BATTERIE LE COMPRENANT

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(73) Proprietor: **LG Energy Solution, Ltd.**
Seoul 07335 (KR)

(72) Inventors:
- **KIM, Kyung-Mo**
  Daejeon 34122 (KR)
- **MUN, Jeong-O**
  Daejeon 34122 (KR)
- **PARK, Jin-Yong**
  Daejeon 34122 (KR)
- **LEE, Jung-Hoon**
  Daejeon 34122 (KR)
- **CHI, Ho-June**
  Daejeon 34122 (KR)

(74) Representative: **Plasseraud IP**
104 Rue de Richelieu
CS92104
75080 Paris Cedex 02 (FR)

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Description

TECHNICAL FIELD

[0001] The present disclosure relates to a pressing jig for pressing a bus bar and a battery module manufacturing system including the pressing jig, and more specifically, to a pressing jig for pressing a bus bar at both sides so that the bus bar is welded to an electrode lead in close contact with each other, and a battery module manufacturing system including the pressing jig.

BACKGROUND ART

[0002] In a conventional battery module, a bus bar is used for electrically connecting stacked battery cells to each other, and a plurality of electrode leads respectively drawn out from the plurality of battery cells are bent and positioned on the bus bar, followed by welding.

[0003] If the battery module is manufactured in this way, in a state where the bent electrode lead is positioned on the bus bar, the electrode lead is pressed toward the bus bar by using a jig so that the electrode lead is closely adhered to the bus bar, and then laser is irradiated onto the electrode lead to perform welding thereto.

[0004] Referring to FIGS. 1 and 2, there is shown a conventional battery module in which a plurality of pouch-type battery cells are electrically connected by a bus bar.

[0005] The conventional battery module is manufactured by inserting each electrode lead 2 drawn from a plurality of pouch-type battery cells 1 into a lead slit 4 of a bus bar 3 as shown in FIG. 1, and then bending the inserted electrode lead 2 to be closely adhered to the bus bar 3 and then performing welding thereto as shown in FIG. 2.

[0006] However, in the conventional battery module as described above, in addition to the process of inserting the electrode lead 2 into the lead slit 4 of the bus bar 3 and the process of welding the electrode lead 2 to the bus bar 3, the process of bending the electrode lead 2 is additionally required, which makes the process complicated.

[0007] In addition, if the cell applied to the battery module is a pouch-type cell, as the cell has a smaller thickness, the electrode lead is also manufactured to have a shorter length. If the electrode lead is shortened as above, the bonding area between the electrode lead and the bus bar is also reduced to lower the bonding strength, thereby increasing the possibility of product failure.

[0008] Thus, it is required to develop a battery module structure in which the electrode lead bending process may be omitted, and accordingly, a new pressing jig for welding, which is suitable for the bonding structure of the electrode lead and the bus bar is also required.

[0009] JP 2008 183625 discloses a pressing jig for welding, and JP 2000 067843A discloses the welding of electrodes with a bus bar which is inserted from a hole formed on a battery case.

DISCLOSURE

Technical Problem

[0010] The present invention is designed to solve the problems of the related art, and therefore the present invention is directed to battery module manufacturing system with a pressing jig according to claim 1.

Technical Solution

[0011] There is provided a battery module manufacturing system with a pressing jig according to claim 1. Further, there is provided a pressing jig for welding, not covered by the present invention, which is installed at one side of a battery module to press a bus bar of the battery module at both sides thereof so that an electrode lead located in a lead slit formed at the bus bar is welded to the bus bar in a closely adhered state, the pressing jig comprising: a first frame having a first distance adjusting unit and a first pressing unit; and a second frame having a second distance adjusting unit facing the first distance adjusting unit and a second pressing unit facing the first pressing unit, wherein the first frame and the second frame are coupled by a hinge so that a distance between first pressing unit and the second pressing unit is increased when a distance between the first distance adjusting unit and the second distance adjusting unit is decreased, and the distance between first pressing unit and the second pressing unit is decreased when the distance between the first distance adjusting unit and the second distance adjusting unit is increased.

[0012] The pressing jig may further comprise a hinge configured to connect the first frame and the second frame so that the first frame and the second frame pivot relative to each other.

[0013] The pressing jig may further comprise a restoring member connected between the first distance adjusting unit and the second distance adjusting unit to apply an elastic force to the first distance adjusting unit and the second distance adjusting unit toward each other.

[0014] The pressing jig may further comprise a distance adjusting knob configured to rotate based on a rotary shaft having a thread so that the first frame moves toward or away from the second frame.

[0015] The first pressing unit may have a first gripping portion formed at an end thereof; the second pressing unit may have a second gripping portion formed at an end thereof; and gripping grooves may be respectively formed at facing surfaces of the first gripping portion and the second gripping portion in a predetermined depth so that the bus bar is inserted therein.

Advantageous Effects

[0016] According to an embodiment of the present invention, it is possible to manufacture a battery module without performing a process of bending the electrode

lead, thereby simplifying the manufacturing process of the battery module. Thus, the electrode lead of the battery cell is not exposed out of the bus bar, and thus it is possible to minimize the disconnection between the electrode lead and the bus bar due to the friction between the electrode lead and an external object during the assembly process and/or in use, thereby minimizing the occurrence of product failure.

DESCRIPTION OF DRAWINGS

[0017] The accompanying drawings illustrate a preferred embodiment of the present invention and together with the foregoing disclosure, serve to provide further understanding of the technical features of the present invention and thus, the present invention is not construed as being limited to the drawing.

FIGS. 1 and 2 are diagrams for illustrating a process of coupling an electrode lead and a bus bar, in manufacturing a conventional battery module.

FIG. 3 is a diagram showing a battery module manufacturing system with a pressing jig according to an embodiment of the present invention.

FIG. 4 is a partially enlarged view of the battery module showing that the electrode lead is exposed through a lead slit formed at the bus bar.

FIG. 5 is a diagram showing that the bus bar is pressed using the pressing jig comprised in a battery module manufacturing system according to an embodiment of the present invention.

FIG. 6 is a perspective view showing the pressing jig comprised in a battery module manufacturing system according to an embodiment of the present invention.

BEST MODE

[0018] Hereinafter, preferred embodiments of the present invention will be described in detail with reference to the accompanying drawings. Prior to the description, it should be understood that the terms used in the specification and the appended claims should not be construed as limited to general and dictionary meanings, but interpreted based on the meanings and concepts corresponding to technical aspects of the present invention on the basis of the principle that the inventor is allowed to define terms appropriately for the best explanation. Therefore, the description proposed herein is just a preferable example for the purpose of illustrations only, not intended to limit the scope of the invention, so it should be understood that other equivalents and modifications could be made thereto without departing from the scope of the invention as defined by the appended claims.

[0019] A battery module manufacturing system including a pressing jig according to an embodiment of the invention will be described with reference to FIGS. 3 to 6.

[0020] FIG. 3 is a diagram showing a battery module manufacturing system including a pressing jig according to an embodiment of the present invention, and FIG. 4 is a partially enlarged view of the battery module showing that the electrode lead is exposed through a lead slit formed at the bus bar. Also, FIG. 5 is a diagram showing that the bus bar is pressed using the pressing jig of a battery module manufacturing system according to an embodiment of the present invention, and FIG. 6 is a perspective view showing the pressing jig of battery module manufacturing system according to an embodiment of the present invention.

[0021] First, referring to FIGS. 3 to 5, the battery module manufacturing system according to an embodiment of the present invention is implemented to include a battery module 100 and a pressing jig 200 installed at one side thereof.

[0022] The battery module 100 is configured by accommodating a cell stack (see FIG. 5) formed by stacking a plurality of battery cells 120 in a module case 110 and then closing an opening at one side of the module case 110 by using a bus bar assembly 130.

[0023] The battery cells 120 have a pair of electrode leads 121 drawn out in opposite directions. Two or more electrode leads 121 drawn from the plurality of battery cells 120 adjacent to each other and extending in the same direction are gathered to form one electrode lead assembly, which is inserted into lead slits S1, S2 formed at a bus bar 132, explained later.

[0024] The bus bar assembly 130 includes a bus bar frame 131 sized and shaped corresponding to the opening formed at one side of the module case 110 so that the cell stack may be inserted therein, and a plurality of bus bars 132 fixedly mounted to the bus bar frame 131 .

[0025] The plurality of bus bars 132 are respectively installed at a plurality of bus bar accommodation portions 131a provided at the bus bar frame 131 with a size and shape corresponding to the bus bar 132.

[0026] The bus bar 132 includes a first bus bar 132a located at the center and a second bus bar 132b and a third bus bar 132c located at both sides of the first bus bar 132a. The second bus bar 132b and the third bus bar 132c are configured as components separate from the bus bar 132a.

[0027] The first bus bar 132a is installed to be fixed in the bus bar accommodation portion 131a of the bus bar frame 131. The second bus bar 132b and the third bus bar 132c are disposed at both sides of the first bus bar 132a inside the bus bar accommodation portion 131a and are installed to move toward or away from the bus bar 132a.

[0028] The second bus bar 132b and the third bus bar 132c are gripped by gripping portions 212a, 222a of the pressing jig 200 inserted into the bus bar accommodation portion 131a and move toward the first bus bar 132a so that the electrode leads 121 respectively located in the first lead slit S1 formed between the first bus bar 132a and the second bus bar 132b and the second lead slit S2 formed between the first bus bar 132a and the third

bus bar 132c are pressed.

[0029] The first electrode lead assembly drawn from the first battery cell group including the plurality of stacked battery cells 120 and the second electrode lead assembly drawn from the second battery cell group adjacent to the first battery cell group are in contact with the same bus bar 132, thereby electrically connecting a pair of battery cell groups adjacent to each other.

[0030] At this time, the first electrode lead assembly and the second electrode lead assembly have different polarities, and thus the first battery cell group and the second battery cell group adjacent to each other are connected in series.

[0031] That is, the battery module 100 is configured so that the plurality of battery cells 120 of the first battery cell group are connected to each other in parallel, and the plurality of battery cell groups are connected to each other in series.

[0032] Even though the figures depict only a case where one battery cell group includes three battery cells 120 and thus one electrode lead assembly is formed by gathering three electrode leads, the present invention is not limited thereto.

[0033] That is, one battery cell group may include two battery cells 120 or four or more battery cells 120, and thus one electrode lead assembly may also include two electrode leads 121 or four or more electrode leads 121.

[0034] Next, the detailed configuration of the pressing jig 200 comprised in a battery module manufacturing system according to an embodiment of the present invention will be described with reference to FIGS. 5 and 6.

[0035] FIG. 5 is a diagram showing that the bus bar is pressed using the pressing jig comprised in a battery module manufacturing system according to an embodiment of the present invention, and FIG. 6 is a perspective view showing the pressing jig comprised in a battery module manufacturing system according to an embodiment of the present invention.

[0036] Referring to FIGS. 5 and 6, the pressing jig 200 comprised in a battery module manufacturing system according to an embodiment of the present invention may include a first frame 210, a second frame 220, a hinge 230, a restoring member 240, and a distance adjusting knob 250.

[0037] The first frame 210 includes a first distance adjusting unit 211 and a first pressing unit 212, and the second frame 220 includes a second distance adjusting unit 221 and a second pressing unit 222. The first frame 210 and the second frame 220 are coupled by the hinge 230 so that they may pivot relative to each other.

[0038] In an embodiment according to the present invention, based on a portion of the first frame 210 coupled to the second frame 220 by the hinge 230, a portion located at one side is defined as a first distance adjusting unit 211, and a portion located at the other side opposite to the above side is defined as a first pressing unit 212. Similarly, in the second frame 220, a portion located at one side based on a portion coupled to the first frame 210 by the hinge 230 is defined as a second distance adjusting unit 221, and a portion located at the other side opposite to the above side is defined as a second pressing unit 222.

[0039] In a state where the first frame 210 and the second frame 220 are coupled to each other by the hinge 230, the first distance adjusting unit 211 and the second distance adjusting unit 221 are disposed to face each other, and the first pressing unit 212 and the second pressing unit 222 are disposed to face each other.

[0040] The first frame 210 and the second frame 220 are coupled by the hinge 230 such that, if the distance between the first distance adjusting unit 211 and the second distance adjusting unit 221 is decreased, the distance between the first pressing unit 212 and the second pressing unit 222 is increased, and if the distance between the first distance adjusting unit 211 and the second distance adjusting unit 221 is increased, the distance between the first pressing unit 212 and the second pressing unit 222 is decreased.

[0041] That is, when using the pressing jig 200, the user may manipulate the pressing jig 200 so that the distance between the first distance adjusting unit 211 and the second distance adjusting unit 221 is increased, thereby pressing the bus bar 132 at both sides.

[0042] Meanwhile, the first pressing unit 212 includes a first gripping portion 212a formed at one end thereof so that the bus bar 132 is stably gripped. The first gripping portion 212a has is a gripping groove G formed in a predetermined depth at a portion in contact with the bus bar 132.

[0043] Similarly, the second pressing unit 222 includes a second gripping portion 222a formed at one end thereof so that the bus bar 132 is stably gripped. The second gripping portion 222a has a gripping groove G formed in a predetermined depth at a portion in contact with the bus bar 132.

[0044] That is, each of the first gripping portion 212a and the second gripping portion 222a have the gripping grooves G formed at the facing surfaces thereof, thereby allowing the second bus bar 132b and the third bus bar 132c being partially inserted and fixed in a stable way.

[0045] Referring to FIGS. 5 and 6 along with FIG. 4, the first gripping portion 212a and the second gripping portion 222a are inserted between an inner wall of the bus bar accommodating portion 131a and the second bus bar 132b and between an inner wall of the bus bar accommodating portion 131a and the third bus bar 132c, respectively, to move the second bus bar 132b and the third bus bar 132c toward the first bus bar 132a.

[0046] In addition, since the second bus bar 132b and the third bus bar 132c are moved as above, the first lead slit S1 and the second lead slit S2 become narrower. As a result, the electrode lead assembly inserted in the first lead slit S1 and the electrode lead assembly inserted in the second lead slit S2 are pressed to closely adhere the electrode lead 121 and the bus bar 132 to each other.

[0047] The restoring member 240 is a member having

an elastic restoring force and connected between the first frame 210 and the second frame 220. Specifically, both ends of the restoring member 240 are coupled to a first fixing portion 211a extended from one end of the first distance adjusting unit 211 and a second fixing portion 221a extending from one end of the second distance adjusting unit 221, respectively, and the restoring member 240 applies a force to the first distance adjusting unit 211 and the second distance adjusting unit 221 such that the first distance adjusting unit 211 and the second distance adjusting unit 221 move close to each other.

[0048] That is, if no other external force is applied to the first distance adjusting unit 211 and the second distance adjusting unit 221, the first distance adjusting unit 211 and the second distance adjusting unit 221 are moved toward each other due to the restoring member 240, and thus, the first pressing unit 212 and the second pressing unit 222 are moved away from each other.

[0049] The distance adjusting knob 250 may be implemented to include a rotary shaft 251 having a thread formed on at least a portion of an outer circumferential surface thereof and a knob handle 252 connected to one end of the rotary shaft 251.

[0050] The other end of the rotary shaft 251, which is opposite to the one end where the knob handle 252 is formed, is pivotally coupled to the first distance adjusting unit 211, and the rotary shaft 251 is provided through the second distance adjusting unit 221. A thread corresponding to the thread formed on the rotary shaft 251 is formed on an inner surface of a perforation hole of the second distance adjusting unit 221 through which the rotary shaft 251 is provided. By doing so, as the rotary shaft 251 rotates, the second distance adjusting unit 221 moves toward or away from the first distance adjusting unit 211.

[0051] That is, if the adjusting knob 250 is rotated along a clockwise direction, the second distance adjusting unit 221 moves away from the first distance adjusting unit 211, and thus the distance between the first pressing unit 212 and the second pressing unit 222 is decreased to press the bus bar 132. On the contrary, if the adjusting knob 250 is rotated along a counterclockwise direction, the second distance adjusting unit 221 moves toward the first distance adjusting unit 211, and thus the distance between the first pressing unit 212 and the second pressing unit 222 is increased, thereby releasing the pressing to the bus bar 132.

[0052] Thus, the user of the pressing jig 200 may rotate the distance adjusting knob 250 in the clockwise direction in a state where the first pressing unit 212 and the second pressing unit 222 are separated wider than the width of the bus bar 132, so that the second bus bar 132b and the third bus bar 132c are moved toward the first bus bar 132a, and then perform welding in a state where the electrode leads 121 located in the lead slits S1, S2 are closely adhered to the bus bar 132.

[0053] In this case, a welding device may access the bus bar 132 along the direction indicated by an arrow in FIG. 5 through the space between the first frame 210 and the second frame 220.

[0054] The present invention has been described in detail. However, it should be understood that the detailed description and specific examples, while indicating preferred embodiments of the invention, are given by way of illustration only, since various changes and modifications within the scope of the invention as defined by the appended claims will become apparent to those skilled in the art from this detailed description.

Claims

1. A battery module manufacturing system, comprising:

a battery module (100) including a cell stack formed by stacking a plurality of battery cells (120),
a module case (110) accommodating the cell stack,
a bus bar assembly (130) covering an opening formed at one side of the module case (110),
wherein the bus bar assembly (130) includes a bus bar frame (131) sized and shaped corresponding to the opening formed at one side of the module case (110), and a plurality of bus bars (132) fixedly mounted to the bus bar frame (131),
wherein each one of the plurality of bus bars (132) comprises a first bus bar (132a), a second bus bar (132b), and a third bus bar (132c);
a pressing jig (200) installed on the bus bar assembly (130) and configured to press a bus bar (132) of the plurality of bus bars (132) at both sides thereof so that electrode leads (121) located in lead slits (S1, S2) provided between the first bus bar (132a) and the second bus bar (132b) and between the first bus bar (132a) and the third bus bar (132c) are welded to the bus bar (132) in a closely adhered state,
wherein the electrode leads (121) are drawn from the plurality of battery cells (120); and
a welding device configured to perform welding in a state where the electrode leads located in the lead slits are closely adhered to the bus bar (132),
wherein
the pressing jig (200) includes:

a first frame (210) having a first distance adjusting unit (211) and a first pressing unit (212); and
a second frame (220) having a second distance adjusting unit (221) facing the first distance adjusting unit (211) and a second pressing unit (222) facing the first pressing unit (212), and

the first frame (210) and the second frame (220) are coupled by a hinge so that a distance between first pressing unit (212) and the second pressing unit (222) is increased when a distance between the first distance adjusting unit (211) and the second distance adjusting unit (221) is decreased, and the distance between first pressing unit (212) and the second pressing unit (222) is decreased when the distance between the first distance adjusting unit (211) and the second distance adjusting unit (221) is increased.

2. The battery module manufacturing system according to claim 1,
wherein the hinge (230) is configured to connect the first frame (210) and the second frame (220) so that the first frame (210) and the second frame (220) pivot relative to each other.

3. The battery module manufacturing system according to claim 1,
wherein the pressing jig further includes a restoring member (240) connected between the first distance adjusting unit (211) and the second distance adjusting unit (221) to apply an elastic force to the first distance adjusting unit (211) and the second distance adjusting unit (221) toward each other.

4. The battery module manufacturing system according to claim 1,
wherein the pressing jig further includes a distance adjusting knob (250) configured to rotate based on a rotary shaft having a thread so that the first frame (210) moves toward or away from the second frame (220).

5. The battery module manufacturing system according to claim 1,

wherein the first pressing unit (212) has a first gripping portion formed at an end thereof;
wherein the second pressing unit (222) has a second gripping portion formed at an end thereof; and
wherein gripping grooves (G) are respectively formed at facing surfaces of the first gripping portion (212a) and second gripping portion (222a) in a predetermined depth so that the bus bars are inserted therein.

Patentansprüche

1. Batteriemodul-Herstellungssystem, umfassend:

ein Batteriemodul (100), welches einen Zellenstapel umfasst, welcher durch Stapeln einer Mehrzahl von Batteriezellen (120) gebildet ist,
ein Modulgehäuse (110), welches den Zellenstapel aufnimmt,
eine Sammelschienen-Anordnung (130), welche eine Öffnung abdeckt, welche an einer Seite des Modulgehäuses (110) gebildet ist,
wobei die Sammelschienen-Anordnung (130) einen Sammelschienen-Rahmen (131), welcher gemäß der Öffnung bemessen und geformt ist, welche an einer Seite des Modulgehäuses (110) gebildet ist, und eine Mehrzahl von Sammelschienen (132) umfasst, welche fest an dem Sammelschienen-Rahmen (131) montiert sind,
wobei jede der Mehrzahl von Sammelschienen (132) eine erste Sammelschiene (132a), eine zweite Sammelschiene (132b) und eine dritte Sammelschiene (132c) umfasst;
eine Pressvorrichtung (200), welche an der Sammelschienen-Anordnung (130) installiert ist und dazu eingerichtet ist, eine Sammelschiene (132) der Mehrzahl von Sammelschienen (132) an beiden Seiten davon zu pressen, so dass Elektrodenleitungen (121), welche in Leitungsschlitzen (S1, S2) angeordnet sind, welche zwischen der ersten Sammelschiene (132a) und der zweiten Sammelschiene (132b) und zwischen der ersten Sammelschiene (132a) und der dritten Sammelschiene (132c) bereitgestellt sind, in einem eng anhaftenden Zustand an die Sammelschiene (132) geschweißt sind,
wobei die Elektrodenleitungen (121) von der Mehrzahl von Batteriezellen (120) gezogen werden; und
eine Schweißvorrichtung, welche dazu eingerichtet ist, ein Schweißen in einem Zustand durchzuführen, in welchem die Elektrodenleitungen, welche in den Leitungsschlitzen angeordnet sind, eng an der Sammelschiene (132) anhaften;
wobei
die Pressvorrichtung (200) umfasst:

einen ersten Rahmen (210), welcher eine erste Distanzeinstelleinheit (211) und eine erste Presseinheit (212) aufweist; und
einen zweiten Rahmen (220), welcher eine zweite Distanzeinstelleinheit (221), welche der ersten Distanzeinstelleinheit (211) zugewandt ist, und eine zweite Presseinheit (222) aufweist, welche der ersten Presseinheit (212) zugewandt ist, und
der erste Rahmen (210) und der zweite Rahmen (220) durch ein Scharnier gekoppelt sind, so dass eine Distanz zwischen der ersten Presseinheit (212) und der zweiten Presseinheit (222) erhöht wird, wenn eine Distanz zwischen der ersten Distanzein-

stelleinheit (211) und der zweiten Distanzeinstelleinheit (221) reduziert wird, und die Distanz zwischen der ersten Presseinheit (212) und der zweiten Presseinheit (222) reduziert wird, wenn die Distanz zwischen der ersten Distanzeinstelleinheit (211) und der zweiten Distanzeinstelleinheit (221) erhöht wird.

2. Batteriemodul-Herstellungssystem nach Anspruch 1,
wobei das Gelenk (230) dazu eingerichtet ist, den ersten Rahmen (210) und den zweiten Rahmen (220) zu verbinden, so dass der erste Rahmen (210) und der zweite Rahmen (220) relativ zueinander schwenken.

3. Batteriemodul-Herstellungssystem nach Anspruch 1,
wobei die Pressvorrichtung ferner ein Rückstellelement (240) umfasst, welches zwischen der ersten Distanzeinstelleinheit (211) und der zweiten Distanzeinstelleinheit (221) verbunden ist, um eine elastische Kraft auf die erste Distanzeinstelleinheit (211) und die zweite Distanzeinstelleinheit (221) aufeinander zu aufzubringen.

4. Batteriemodul-Herstellungssystem nach Anspruch 1,
wobei die Pressvorrichtung ferner einen Distanzeinstellknopf (250) umfasst, welcher dazu eingerichtet ist, basierend auf einer Rotationswelle mit einem Gewinde zu drehen, so dass sich der erste Rahmen (210) in Richtung des zweiten Rahmens (220) oder von diesem weg bewegt.

5. Batteriemodul-Herstellungssystem nach Anspruch 1,

wobei die erste Presseinheit (212) einen ersten Griffabschnitt aufweist, welcher an einem Ende davon gebildet ist;
wobei die zweite Presseinheit (222) einen zweiten Griffabschnitt aufweist, welcher an einem Ende davon gebildet ist; und
wobei Griffnuten (G) jeweils an einander zugewandten Flächen des ersten Griffabschnitts (212a) und des zweiten Griffabschnitts (222a) in einer vorbestimmten Tiefe gebildet sind, so dass die Sammelschienen darin eingesetzt sind.

Revendications

1. Système de fabrication de module de batterie, comprenant :
un module de batterie (100) comportant un empilement de cellules formé par empilage d'une pluralité de cellules de batterie (120),
un boîtier de module (110) logeant l'empilement de cellules,
un ensemble de barres d'interconnexion (130) recouvrant une ouverture formée au niveau d'un côté du boîtier de module (110),
dans lequel l'ensemble de barres d'interconnexion (130) comporte un cadre de barres d'interconnexion (131) dont la taille et la forme correspondent à l'ouverture formée au niveau d'un côté du boîtier de module (110), et une pluralité de barres d'interconnexion (132) montées à demeure sur le cadre de barres d'interconnexion (131),
dans lequel chacune de la pluralité de barres d'interconnexion (132) comprend une première barre d'interconnexion (132a), une deuxième barre d'interconnexion (132b) et une troisième barre d'interconnexion (132c) ;
un gabarit de compression (200) installé sur l'ensemble de barres d'interconnexion (130) et configuré pour comprimer une barre d'interconnexion (132) de la pluralité de barres d'interconnexion (132) au niveau des deux côtés de celle-ci de telle sorte que des fils d'électrode (121) situés dans des fentes à fil (S1, S2) prévues entre la première barre d'interconnexion (132a) et la deuxième barre d'interconnexion (132b) et entre la première barre d'interconnexion (132a) et la troisième barre d'interconnexion (132c) sont soudés sur la barre d'interconnexion (132) dans un état étroitement collé,
dans lequel les fils d'électrode (121) sont tirés de la pluralité de cellules de batterie (120) ; et
un dispositif de soudage configuré pour réaliser un soudage dans un état où les fils d'électrode situés dans les fentes à fil sont étroitement collés à la barre d'interconnexion (132),
dans lequel
le gabarit de compression (200) comporte :

un premier cadre (210) ayant une première unité de réglage de distance (211) et une première unité de compression (212) ; et
un deuxième cadre (220) ayant une deuxième unité de réglage de distance (221) opposée à la première unité de réglage de distance (211) et une deuxième unité de compression (222) opposée à la première unité de compression (212), et
le premier cadre (210) et le deuxième cadre (220) sont couplés par une charnière de telle sorte qu'une distance entre la première unité de compression (212) et la deuxième unité de compression (222) augmente lorsqu'une distance entre la première unité de

réglage de distance (211) et la deuxième unité de réglage de distance (221) diminue, et la distance entre la première unité de compression (212) et
la deuxième unité de compression (222) diminue lorsque la distance entre la première unité de réglage de distance (211) et la deuxième unité de réglage de distance (221) augmente.

2. Système de fabrication de module de batterie selon la revendication 1,
dans lequel la charnière (230) est configurée pour relier le premier cadre (210) et le deuxième cadre (220) de telle sorte que le premier cadre (210) et le deuxième cadre (220) pivotent l'un par rapport à l'autre.

3. Système de fabrication de module de batterie selon la revendication 1,
dans lequel le gabarit de compression comporte en outre un élément de restauration (240) relié entre la première unité de réglage de distance (211) et la deuxième unité de réglage de distance (221) pour appliquer une force élastique à la première unité de réglage de distance (211) et à la deuxième unité de réglage de distance (221) de façon à les rapprocher.

4. Système de fabrication de module de batterie selon la revendication 1,
dans lequel le gabarit de compression comporte un bouton de réglage de distance (250) configuré pour tourner sur la base d'un arbre rotatif ayant un filetage de telle sorte que le premier cadre (210) se rapproche ou s'éloigne du deuxième cadre (220).

5. Système de fabrication de module de batterie selon la revendication 1,

dans lequel la première unité de compression (212) a une première partie de prise formée au niveau d'une extrémité de celle-ci ;
dans lequel la deuxième unité de compression (222) a une deuxième partie de prise formée au niveau d'une extrémité de celle-ci ; et
dans lequel des rainures de prise (G) sont respectivement formées au niveau de surfaces opposées de la première partie de prise (212a) et de la deuxième partie de prise (222a) dans une profondeur prédéterminée de telle sorte que les barres d'interconnexion sont insérées dans celles-ci.

FIG. 1

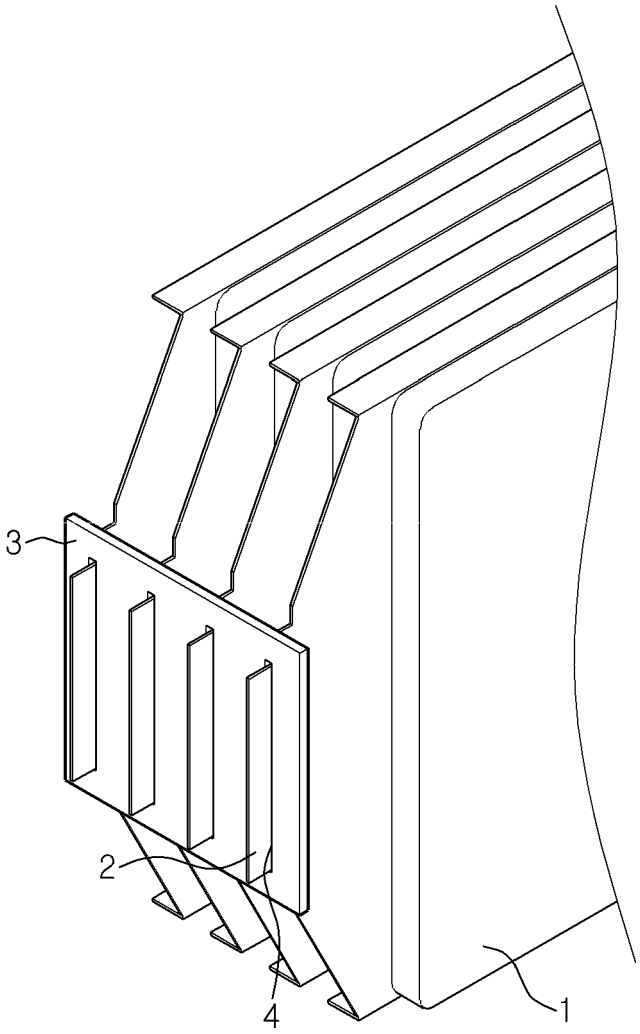


FIG. 2

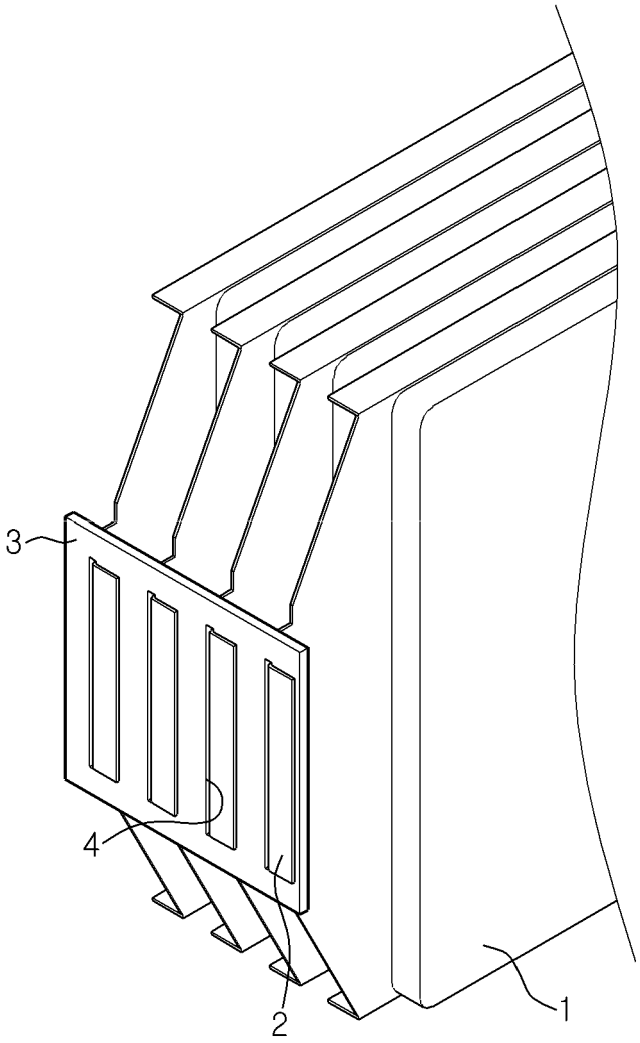


FIG. 3

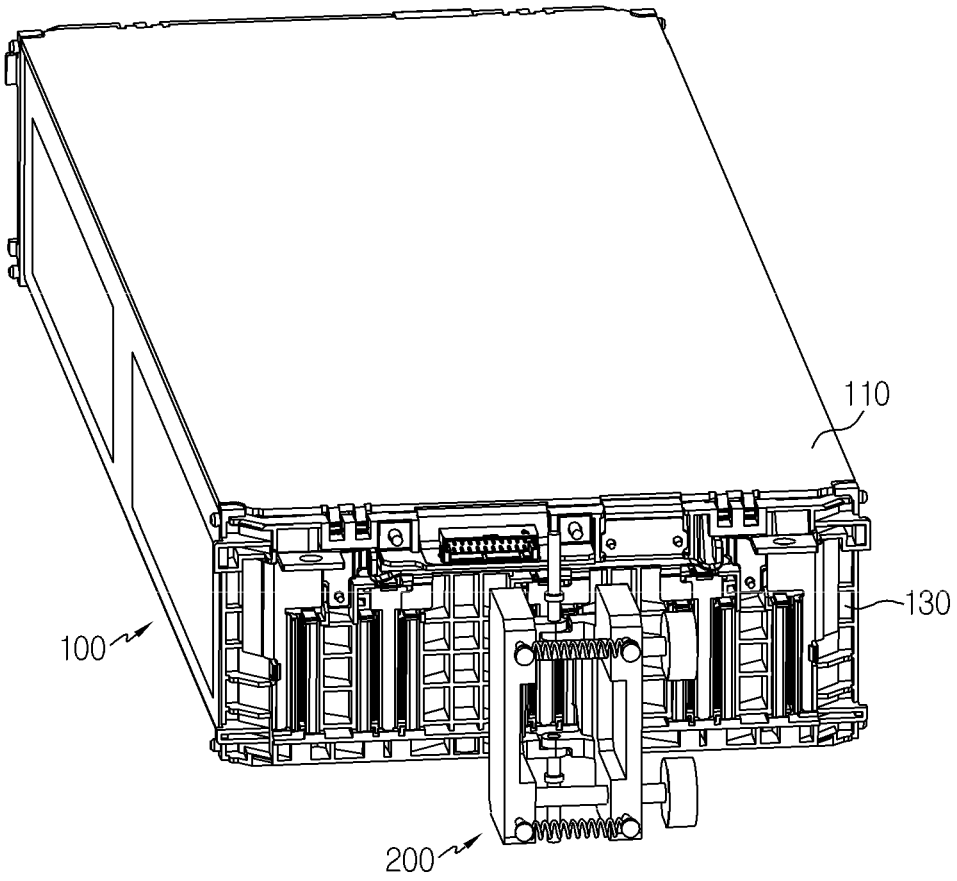


FIG. 4

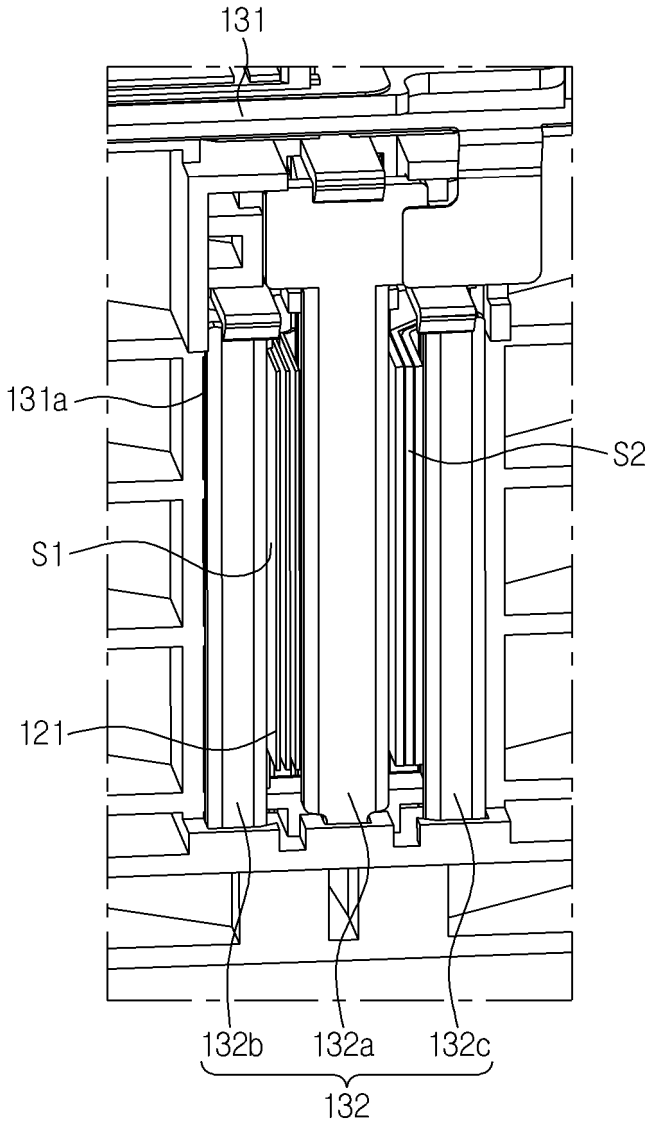


FIG. 5

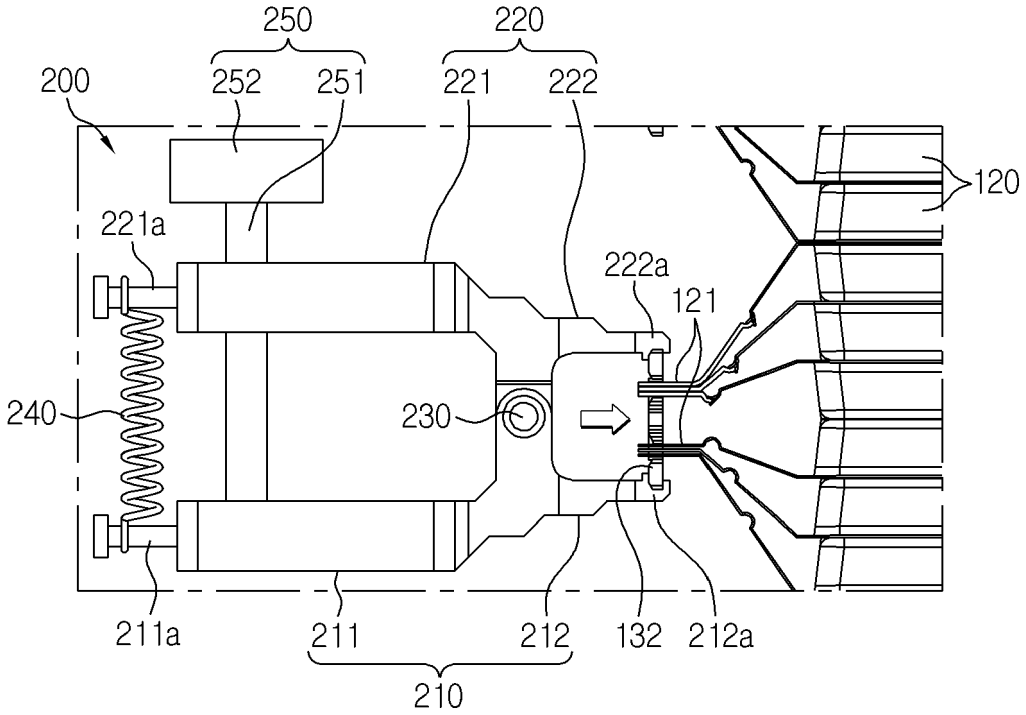
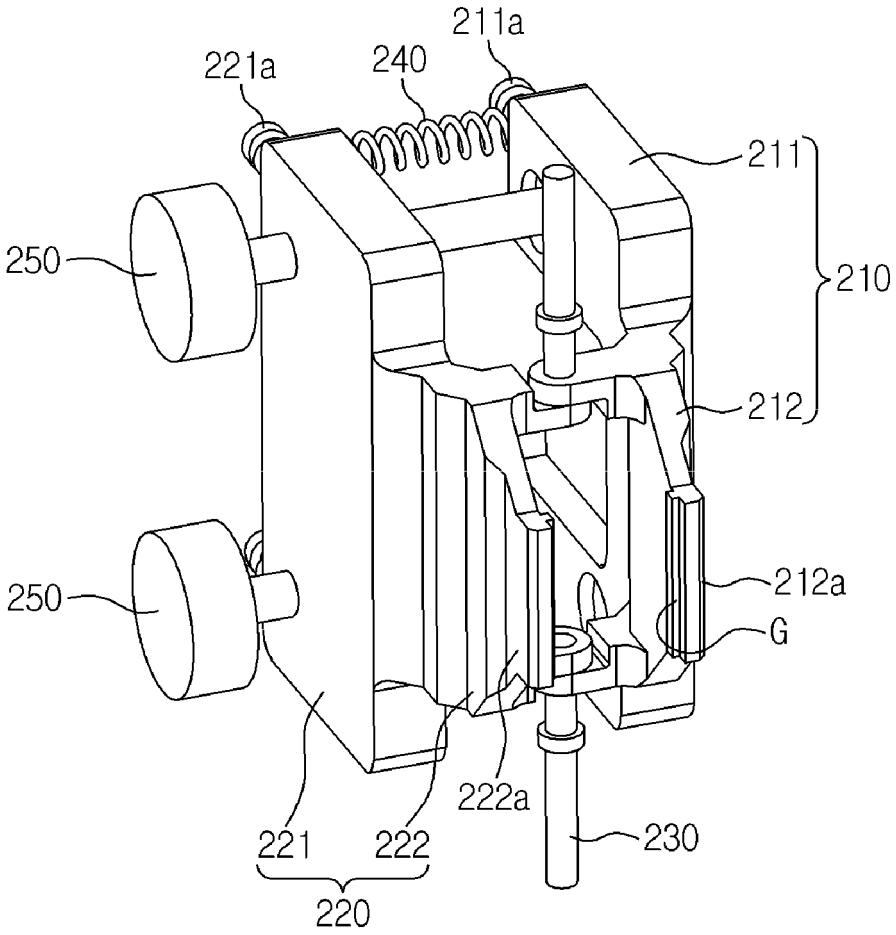

250
220
200
252
251
221
222
120
221a
222a
121
240
230
211a
211
212
132
212a
210

FIG. 6



REFERENCES CITED IN THE DESCRIPTION

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