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BATTERY CELL, BATTERY, AND ELECTRICAL APPARATUS

Abstract

A battery cell, a battery, and an electrical device are disclosed. The battery cell comprises: a casing assembly, comprising a casing and a first pole, the first pole comprising a pole body and a first cover plate, the pole body being mounted in the casing, and the first cover plate being arranged on the pole body; and a cell assembly, comprising an active material coating portion and a conductive portion connected to the active material coating portion, the active material coating portion being accommodated in the casing, and the conductive portion being connected to the pole body by means of a first welding portion. The first welding portion is at least partially located on the side of the pole body away from the active material coating portion, and the first cover plate is used for shielding the first welding portion.

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Background/Summary

CROSS REFERENCE TO RELATED APPLICATIONS [0001] This application is a continuation of International application PCT/CN2023/079677 filed on Mar. 3, 2023, the content of which is incorporated herein by reference in its entirety.

TECHNICAL FIELD
[0002] The present application relates to the technical field of batteries, and in particular, to a battery cell, a battery, and an electrical apparatus.
BACKGROUND
[0003] In recent years, new energy vehicles have developed by leaps and bounds. In the field of electric vehicles, batteries, as the power source of electric vehicles, play an irreplaceable and important role. Generally, a battery includes a plurality of battery cells. There is a certain risk of thermal runaway or short circuit in the battery cells during use, resulting in poor reliability of the battery cells, which is not conducive to improving the performance and service life of the battery cells.
SUMMARY
[0004] Embodiments of the present application provide a battery cell, a battery, and an electrical apparatus, which can reduce the probability of thermal runaway or short circuit of the battery cell, improve the reliability of the battery cell, and enhance the performance and service life of the battery cell.
[0005] In a first aspect, the embodiments of the present application provide a battery cell, which includes: a housing assembly, including a housing and a first post terminal, the first post terminal including a post terminal body and a first cover plate, the post terminal body being mounted in the housing, and the first cover plate being provided on the post terminal body; a battery cell assembly, including an active substance-coated part and a conductive part connected to the active substance-coated part, the active substance-coated part being accommodated in the housing, and the conductive part being connected to the post terminal body through a first welding part, where the first welding part is at least partially located on a side of the post terminal body away from the active substance-coated part, and the first cover plate is configured to shield the first welding part.
[0006] In the above technical solution, by locating the first welding part at least partially on the side of the post terminal body away from the active substance-coated part, in one aspect, the metal residues generated in the welding process can be reduced from entering the interior of the battery cell, and to a certain extent, the metal residues can be prevented from overlapping the positive and negative electrode plates, thereby reducing the possibility of internal short circuit in the battery cell. In another aspect, the first welding part can be kept away from the active substance-coated part. When the post terminal body and the conductive part are welded at high temperature to form the first welding part, since the first welding part is kept away from the active substance-coated part as a high-temperature heat source, the influence of the high temperature generated by the welding on

the active substance-coated part can be reduced, and the probability of damage to the active substance-coated part can be reduced, thereby improving the reliability of the battery cell. In addition, after the post terminal body is welded to the conductive part inside the housing, when the battery cell is welded to the busbar component, the first cover plate can play a protective role by shielding the first welding part, which reduces the influence of the high temperature generated when the post terminal body is welded to the busbar component on the first welding part, thereby improving the connection reliability between the post terminal body and the conductive part.

[0007] In some embodiments, the post terminal body is provided with a first accommodating groove, a surface of the first post terminal on a side facing the active substance-coated part is a post terminal inner end surface, an opening of the first accommodating groove is formed on the post terminal inner end surface, and the first accommodating groove is provided with a first end wall and a first side wall; the first end wall is located on a side of the first side wall distal to the active substance-coated part, at least a part of the conductive part is accommodated in the first accommodating groove, the first welding part is provided on the first end wall, and the first cover plate is fitted to the post terminal body and covers the first welding part.

[0008] In the above technical solution, in one aspect, by forming the first accommodating groove on the first post terminal, the weight of the first post terminal can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell and the battery; in another aspect, since the opening of the first accommodating groove is formed on the post terminal inner end surface, and the post terminal inner end surface is the surface of the first post terminal on a side proximal to the active substance-coated part, the first accommodating groove can be open toward the active substance-coated part, thereby facilitating the conductive part to extend into the first accommodating groove and improving the assembly efficiency. Moreover, the first accommodating groove in this form is easy to process, thereby improving the production efficiency.

[0009] Furthermore, the first accommodating groove is easy to be processed to have a relatively large volume, so as to accommodate more conductive parts. Meanwhile, since the first accommodating groove is open toward the active substance-coated part, the first accommodating groove can also be used as a buffering and temporary storage structure for an electrolytic solution, such that a larger amount of electrolytic solution can be accommodated in the housing; since the electrolytic solution will be consumed during the charging and discharging processes of the battery cell, the service life of the battery cell can be prolonged when there is a larger amount of electrolytic solution. Also, since the first accommodating groove is open toward the active substance-coated part, the first accommodating groove can also be used as an accommodating and buffering structure for gas generated inside the battery cell assembly, so as to reduce the expansion of the battery cell, thereby improving the reliability and stability of the battery cell.

[0010] In addition, since the first accommodating groove is located on an inner side of the first post terminal, external foreign substances and impurities are not easy to enter the first accommodating groove, thereby reducing the influence of external foreign substances and impurities on the battery cell assembly, improving the stability and reliability of the battery cell assembly, and further improving the stability and reliability of the battery cell and battery. Secondly, by providing the first welding part between the post terminal body and the conductive part on the first end wall, in one aspect, the first welding part can be further far away from the active substance-coated part when in the first accommodating groove, thereby further reducing the influence of the high temperature generated when the post terminal body and the conductive part are welded to form the first welding part on the active substance-coated part; in another aspect, not only the first accommodating groove has the function of accommodating at least a part of the conductive part, but also the wall of the first accommodating groove has the function of realizing an electrical connection to the conductive part, such that the structure of the first post terminal can be simplified, thereby facilitating the processing of the first post terminal, and the structure of the conductive part can also be simplified, thereby reducing the redundancy of the conductive part and lowering the

cost of the conductive part. Furthermore, by utilizing the welding of the first end wall to the conductive part, the welding area formed by the first welding part can be set relatively large, which can not only reduce the difficulty of welding, but also improve the reliability and stability of welding, thereby improving the performance of the battery cell.

[0011] In addition, since the first welding part is located in the first accommodating groove, not only can the first welding part be prevented from protruding outside the first post terminal and occupying the space outside the first post terminal, but also the first welding part can be protected by the first cover plate, thereby improving the welding reliability and stability of the conductive part and the first post terminal.

[0012] In some embodiments, the first end wall is provided with a first recess, and at least a part of the first welding part is located in the first recess.

[0013] In the above technical solution, in one aspect, the first recess can be used to pre-position and limit the first welding part, which is not only conducive to accurately locating the position for welding and improving the production efficiency, but also conducive to improving the stability and reliability of the conductive part and ensuring the stability and reliability of the battery cell in the charging and discharging processes; in another aspect, by providing the first recess on the first end wall, the wall thickness of a part of the first end wall can be locally reduced, which is not only conducive to welding, but also conducive to reducing the weight of the first post terminal and improving the gravimetric energy density of the battery cell.

[0014] In some embodiments, the first post terminal is provided with a first groove, a surface of the first post terminal on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the first groove is formed on the post terminal outer end surface, and the first cover plate covers the opening of the first groove.

[0015] In the above technical solution, in one aspect, since the first post terminal is provided with the first groove, the weight of the first post terminal can be further reduced, so as to improve the gravimetric energy density of the battery cell and the battery; in another aspect, the first groove is located on an outer side of the first post terminal, that is, the first groove is open to a side of the first post terminal away from the interior of the housing, and the first groove can be used to accommodate or mount structural components of the battery that electrically connect various battery cells, so as to make full use of the space in the first post terminal, thereby improving the space utilization and volumetric energy density of the battery; by providing the first groove and enabling the first cover plate to cover the opening of the first groove, the welding of the first cover plate is facilitated, thereby improving the assembly efficiency.

[0016] In addition, since the first post terminal is provided with both the first accommodating groove and the first groove, the first groove is located on a side of the first accommodating groove distal to the active substance-coated part, and the first groove is open in a direction away from the first accommodating groove, it is conducive to laser welding the conductive part to the first end wall through the first groove from the outside of the first post terminal, that is, a side of the first post terminal distal to the active substance-coated part, so as to facilitate the electrical connection between the conductive part and the first post terminal through external welding. That is, by the above structural arrangement, external welding of the first post terminal to the conductive part through the first groove can be facilitated, which facilitates processing and manufacture of the battery cell and can save processing and manufacturing costs.

[0017] In some embodiments, the active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive part includes a tab part electrically connected to the current collector, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, at least a part of the second gathering part is accommodated in the first

accommodating groove, and the second gathering part is connected to the first end wall through the first welding part.

[0018] In the above technical solution, since the tab part includes the second gathering part formed by converging and connecting parts of the plurality of tab plates, at least a part of the second gathering part is accommodated in the first accommodating groove, which facilitates the connection between the conductive part and the first post terminal and can make full use of the space of the first post terminal, thereby improving the volumetric energy density of the battery cell. When the second gathering part is electrically connected to the first end wall through the first welding part, such as when the second gathering part is welded (e.g., laser welded) to the first end wall, the composition of the battery cell assembly can be simplified, thereby reducing the number of components, simplifying the assembly process, and improving the assembly efficiency.

[0019] In some embodiments, the active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive part includes a tab part and an adapting piece, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, the adapting piece is connected to the second gathering part, at least a part of the adapting piece is accommodated in the first accommodating groove, and the adapting piece is connected to the first end wall through the first welding part.

[0020] In the above technical solution, in one aspect, by accommodating at least a part of the adapting piece in the first accommodating groove, the space in the first post terminal can be more fully utilized, and the space occupied by the conductive part in the housing can be further reduced, so as to improve the volumetric energy density of the battery cell. In another aspect, by using the adapting piece and the first welding part to achieve an indirect electrical connection between the second gathering part and the first post terminal, the adapting piece can be welded to the first post terminal at a part avoiding the second gathering part, such that the welding between the adapting piece and the first post terminal is firm, the risk of welding cracking is low, and the reliability and stability of the battery cell can be further improved; meanwhile, by electrically connecting the first post terminal and the tab plates through the adapting piece, the configuration of the tab plates can also be simplified.

[0021] In some embodiments, at least a part of the first gathering part is accommodated in the first accommodating groove.

[0022] In the above technical solution, by accommodating at least a part of the first gathering part of the tab part in the first accommodating groove, the space in the first post terminal can be more fully utilized, and the space occupied by the tab part in the housing can be further reduced, so as to accommodate an active substance-coated part of a larger size, thereby improving the volumetric energy density of the battery cell; moreover, the redundancy of the tab part in the housing can be better reduced, thereby further reducing the probability of short circuit between the tab part and the active substance-coated part.

[0023] In some embodiments, the housing is provided with a mounting hole, and the first post terminal is mounted in the mounting hole; in an axial direction of the first post terminal, a depth H1 of the first accommodating groove is greater than or equal to a minimum distance H2 from the post terminal inner end surface to the mounting hole.

[0024] In the above technical solution, since in the axial direction of the first post terminal, the depth H1 of the first accommodating groove is greater than or equal to the minimum distance H2 from the post terminal inner end surface to the mounting hole, the volume of the first post terminal can be fully utilized, such that the first accommodating groove has a relatively great depth, which is conducive to accommodating more conductive parts, thereby reducing the space occupied by the conductive parts in the housing to a greater extent, further improving the energy density of the

battery cell, and further reducing the redundancy of the conductive parts in the housing. Meanwhile, since the first accommodating groove has a relatively great depth, the gas generated in the battery cell assembly can be accommodated, so as to ensure the reliability and stability of the battery cell, and a larger amount of electrolytic solution can also be accommodated, so as to ensure the service life of the battery cell.

[0025] In some embodiments, the post terminal body is provided with a second accommodating groove, a surface of the post terminal body on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the second accommodating groove is formed on the post terminal outer end surface, the second accommodating groove is provided with a second end wall proximal to the active substance-coated part, the first welding part is provided on the second end wall, and the first cover plate is fitted to the post terminal body and covers the opening of the second accommodating groove.

[0026] In the above technical solution, in one aspect, by providing the second accommodating groove on the first post terminal, the weight of the first post terminal can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell and the battery; in another aspect, since the opening of the second accommodating groove is formed on the post terminal outer end surface, and the post terminal outer end surface is a surface of the first post terminal on a side distal to the active substance-coated part, the second accommodating groove can be open in a direction away from the active substance-coated part. In this way, when at least a part of the conductive part is accommodated in the second accommodating groove, the accommodation and arrangement of the conductive part can be easily realized through the opening of the second accommodating groove, the electrical connection operation between the conductive part and the first post terminal can be easily realized through the opening of the second accommodating groove, and the like, thereby reducing the production difficulty of the battery cell and improving the production efficiency of the battery cell. The first welding part is provided on the second end wall, that is, not only the second accommodating groove has the function of accommodating at least a part of the conductive part, but also the wall of the second accommodating groove has the function of welding to the conductive part, such that the structure of the first post terminal can be simplified, thereby facilitating the processing of the first post terminal. Furthermore, the opening direction of the opening of the second accommodating groove enables the welding operation between the conductive part and the wall of the second accommodating groove to be easily performed through the opening of the second accommodating groove, such that the difficulty of welding can be reduced. Furthermore, by utilizing the wall of the second accommodating groove to achieve a welding connection to the conductive part, the welding region formed by the first welding part between the conductive part and the first post terminal can be relatively large, thereby improving the reliability and stability of the electrical connection, and further improving the performance of the battery cell.

[0027] Moreover, since the conductive part is connected to the post terminal body through the first welding part, there is welding slag at the first welding part. By providing the first welding part on the second end wall, the welding slag can be kept away from the active substance-coated part, thereby reducing the amount of welding slag entering the housing. In another aspect, by shielding the first welding part through the first cover plate, the first welding part can be protected. In this way, the welding slag or part of the welding slag falling from the first welding part can be blocked by the first cover plate, thereby further reducing the amount of welding slag entering the housing. By reducing the amount of welding slag entering the housing twice, the risk of short circuit inside the battery cell due to the presence of welding slag can be greatly reduced, thereby improving the reliability of the battery cell.

[0028] In addition, when the battery cell transmits electricity to the outside, the post terminal body needs to be electrically connected to the busbar component. At this time, the post terminal body is welded to the busbar component. In this case, since the first cover plate can shield the first welding

part, the busbar component can be prevented from contacting the first welding part, or it can be understood that the busbar component and the first welding part can be isolated from each other, which can also reduce the influence of the first welding part on other welding positions on the post terminal body.

[0029] In some embodiments, the conductive part is located on a side of the second end wall facing the active substance-coated part.

[0030] In the above technical solution, the first welding part is provided on the side of the second end wall facing the active substance-coated part. At this time, a distance between the first welding part and the surface of the post terminal body located on an outer side of the housing is relatively long, which can reduce the influence of the high temperature generated when the post terminal body is welded to the busbar component on the first welding part.

[0031] In some embodiments, the second accommodating groove is in communication with the interior of the housing through a first perforation, the conductive part is provided in the first perforation in a penetrating manner and is at least partially accommodated in the second accommodating groove, and the conductive part is at least partially provided on a side of the second end wall away from the active substance-coated part.

[0032] In the above technical solution, since the second accommodating groove can be in communication with the interior of the housing through the first perforation, the second accommodating groove can also be used as a buffering and temporary storage structure for an electrolytic solution, such that a larger amount of electrolytic solution can be accommodated in the housing; since the electrolytic solution will be consumed during the charging and discharging processes of the battery cell, the service life of the battery cell can be prolonged when there is a larger amount of electrolytic solution. Also, since the second accommodating groove can be in communication with the interior of the housing through the first perforation, the second accommodating groove can also be used as an accommodating and buffering structure for gas generated inside the battery cell assembly, so as to reduce the expansion of the battery cell, thereby improving the reliability and stability of the battery cell.

[0033] In some embodiments, the second accommodating groove is further provided with a second side wall, the second side wall is located on a side of the second end wall distal to the active substance-coated part, and the second side wall and the second end wall define, in an enclosing manner, the second accommodating groove; the first perforation is formed on the second end wall, the second end wall is provided with a second recess, and at least a part of the first welding part is located in the second recess.

[0034] In the above technical solution, in one aspect, since the first perforation is formed on the second end wall, it is convenient for the conductive part to extend into the second accommodating groove through the first perforation, which can simplify the structure of the conductive part, reduce the redundancy of the conductive part, and lower the cost of the conductive part. In another aspect, a part of the first welding part located in the second recess is configured to match the second recess in shape and is provided in a fitting manner to achieve an electrical connection, such that the second recess can be used to pre-position and limit the electrical connection position on the conductive part, which is conducive to accurately locating the position for the electrical connection, thereby improving the production efficiency and improving the stability and reliability of the position of the electrical connection, so as to ensure the reliability and stability of the charging and discharging operations of the battery cell.

[0035] In some embodiments, the active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive part includes a tab part electrically connected to the current collector, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active

substance-coated part, at least a part of the second gathering part is accommodated in the second accommodating groove, and the second gathering part is connected to the second end wall through the first welding part.

[0036] In the above technical solution, since the tab part includes the second gathering part formed by converging and connecting parts of the plurality of tab plates, at least a part of the second gathering part can be easily accommodated in the second accommodating groove, which facilitates the welding of the conductive part to the first post terminal. Secondly, by accommodating at least a part of the second gathering part in the second accommodating groove, the space in the first post terminal can be utilized, so as to reduce the space occupied by the conductive part in the housing, thereby improving the volumetric energy density of the battery cell.

[0037] In some embodiments, the active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive part includes a tab part and an adapting piece, the tab part is electrically connected to the current collector, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, the adapting piece is connected to the second gathering part, at least a part of the adapting piece is accommodated in the second accommodating groove, and the adapting piece is connected to the second end wall through the first welding part.

[0038] In some embodiments, at least a part of the first gathering part is accommodated in the second accommodating groove.

[0039] In the above technical solution, by accommodating at least a part of the first gathering part and the adapting piece in the second accommodating groove, the space in the first post terminal can be more fully utilized, so as to further reduce the space occupied by the conductive part in the housing, thereby further improving the volumetric energy density of the battery cell. Furthermore, by providing the adapting piece of the plate structure, it is convenient for the adapting piece to pass through the first perforation and extend into the second accommodating groove.

[0040] In some embodiments, the post terminal body is provided with a first accommodating part, the first accommodating part is provided with a third accommodating groove, a surface of the first post terminal on a side facing the active substance-coated part is a post terminal inner end surface, the third accommodating groove is located on a side of the second accommodating groove proximal to the active substance-coated part, and an opening of the third accommodating groove is formed on the post terminal inner end surface; the third accommodating groove is connected to the second accommodating groove through the first perforation, and at least a part of the first gathering part is accommodated in the third accommodating groove.

[0041] In the above technical solution, a part of the conductive part is located in the third accommodating groove, and meanwhile, the conductive part is provided in the first perforation in a penetrating manner, and the rest of the conductive part is located in the second accommodating groove, such that the space in the first post terminal can be more fully utilized, and the space occupied by the conductive part the housing can be reduced.

[0042] In some embodiments, the housing assembly further includes a second cover plate, and the second cover plate lids the first perforation and is located outside the conductive part in the second accommodating groove.

[0043] In the above technical solution, at least a part of the conductive part is located in the second accommodating groove, the second cover plate lids this part of the conductive part, and the second cover plate also lids the first perforation, such that when the electrolytic solution enters the second accommodating groove from the first perforation, the problem of overflow of the electrolytic solution this part of the conductive part from the first post terminal can be alleviated through the second cover plate, thereby improving the reliability of the battery cell.

[0044] In some embodiments, the housing is provided with a mounting hole, and the first post terminal is mounted in the mounting hole; in an axial direction of the first post terminal, a depth H3 of the second accommodating groove is greater than or equal to a minimum distance H4 from the post terminal outer end surface to the mounting hole.

[0045] In the above technical solution, the depth H3 of the second accommodating groove refers to a maximum depth of the second accommodating groove in the axial direction of the first post terminal. Since in the axial direction of the first post terminal, the depth H3 of the second accommodating groove is greater than or equal to the minimum distance H4 from the post terminal outer end surface to the mounting hole, the volume of the first post terminal can be fully utilized, such that the second accommodating groove has a relatively great depth, which is conducive to accommodating more conductive parts, thereby reducing the space occupied by the conductive parts in the housing to a greater extent, further improving the energy density of the battery cell, and further reducing the redundancy of the conductive parts in the housing. Meanwhile, since the second accommodating groove has a relatively great depth, the gas generated in the battery cell assembly can be accommodated, so as to ensure the reliability and stability of the battery cell, and a larger amount of electrolytic solution can also be accommodated, so as to ensure the service life of the battery cell.

[0046] In some embodiments, the post terminal body is provided with a first accommodating part, the first accommodating part is provided with a fourth accommodating groove, a surface of the post terminal body on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the fourth accommodating groove is formed on the post terminal outer end surface, the fourth accommodating groove is in communication with the interior of the housing through a second perforation, the conductive part is provided in the second perforation in a penetrating manner, the first welding part is provided on the wall of the second perforation formed in the first accommodating part, and the first cover plate is fitted to the post terminal body and covers the second perforation.

[0047] In the above technical solution, by providing the fourth accommodating groove, the welding of the conductive part to the wall of the second perforation can be easily realized. Furthermore, in some cases, the sealing of the second perforation can be realized by the electrical connection of the conductive part to the first post terminal. For example, the conductive part and the wall of the second perforation can be welded at a position where the second perforation is connected to the fourth accommodating groove, so as to facilitate the operation. In addition, by controlling the weld mark, the sealing of the second perforation can be realized by utilizing the weld mark and the conductive part, so as to alleviate the problem of leakage of the electrolytic solution in the housing from the second perforation.

[0048] In some embodiments, the post terminal body includes a first post terminal part and a second post terminal part made of different materials and electrically connected, the second post terminal part is located on a side of the first post terminal part distal to the active substance-coated part, the first accommodating part is provided on the first post terminal part or on the first post terminal part and the second post terminal part, and the first welding part is provided on the first post terminal part.

[0049] In the above technical solution, by configuring the first post terminal as a composite form composed of different materials, the first post terminal part located on the inner side is fitted in a receiving manner and electrically connected to the conductive part, and the second post terminal part located on the outer side is electrically connected to the busbar component and the like, which is conducive to realizing the assembly and electrical connection of the first post terminal to related components, reducing the mutual interference between the welding position of the first post terminal and the conductive part, and the welding position of the first post terminal and the busbar component of the battery, and improving the reliability and stability of the battery cell.

[0050] In some embodiments, the first cover plate is provided with a second accommodating part,

the second accommodating part is provided with a fifth accommodating groove, an opening of the fifth accommodating groove is formed on an end surface of the first cover plate on a side facing the active substance-coated part, and the fifth accommodating groove is provided with a third end wall and a third side wall; the third end wall is located on a side of the third side wall distal to the active substance-coated part, and at least a part of the first welding part is accommodated in the fifth accommodating groove.

[0051] In the above technical solution, in one aspect, by providing the fifth accommodating groove on the first cover plate, the weight of the first post terminal can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell and the battery; in another aspect, since the opening of the fifth accommodating groove is formed on the end surface of the first cover plate on the side facing the active substance-coated part, and the third end wall is located on the side of the third side wall distal to the active substance-coated part, the fifth accommodating groove can be open in a direction away from the active substance-coated part. In this way, when at least a part of the conductive part is accommodated in the fifth accommodating groove, the accommodation and arrangement of the first welding part can be easily realized through the opening of the fifth accommodating groove, thereby reducing the production difficulty of the battery cell and improving the production efficiency of the battery cell.

[0052] In some embodiments, the first cover plate is electrically connected to the post terminal body; or, the first cover plate is provided to be insulated from the post terminal body.

[0053] In the above technical solution, the first cover plate can be electrically connected to the post terminal body, and at this time, the first cover plate can also participate in the electrical connection to the busbar component, which can increase the area of the weldable region, thereby facilitating the welding of the first post terminal to the busbar component. The first cover plate may also not be electrically connected to the post terminal body, that is, the two are insulated with each other. In this case, the first cover plate mainly serves to protect the first welding part.

[0054] In some embodiments, the first cover plate includes a first conductive member and a second conductive member made of different materials, the first conductive member is fitted to and electrically connected to the post terminal body, and the second conductive member is fitted to and electrically connected to the first conductive member.

[0055] In the above technical solution, by configuring the first cover plate to be a composite form, and configuring the first conductive member to be made of the same material as the first post terminal, the electrical connection between the first conductive member and the first post terminal is facilitated. For example, the first conductive member can be easily and reliably and stably connected to the first post terminal through welding. Furthermore, since the second conductive member is made of a different material from that of the first conductive member, the electrical connection between the second conductive member and a busbar component made of a different material from that of the first post terminal is facilitated. For example, the second conductive member can be easily and reliably and stably connected to a busbar component made of the same material as that of the second conductive member through welding.

[0056] In some embodiments, the first conductive member is provided with a second groove, the second conductive member is embedded in the second groove, and an opening of the second groove is formed on a surface of the first conductive member distal to the active substance-coated part, such that the second conductive member is exposed from the opening of the second groove.

[0057] In the above technical solution, in one aspect, by embedding the second conductive member in the first conductive member, the difficulty in assembling the first conductive member and the second conductive member can be reduced, thereby improving the stability and convenience of the fit between the first conductive member and the second conductive member, and the thickness of the first cover plate can be reduced, thereby reducing the space occupied by the first cover plate, so as to improve the space utilization of the battery cell. In another aspect, since the second conductive member can be exposed from the surface of the first conductive member distal to the

second accommodating groove through the opening of the second groove, it is conducive to realizing the electrical connection between the second conductive member and the busbar component outside the first post terminal.

[0058] In addition, since the opening of the second groove is formed on the surface of the first conductive member distal to the second accommodating groove, it means that the second groove is open in a direction away from the active substance-coated part, such that the part of the first conductive member configured to define the wall of the second groove is located between the second accommodating groove and the second conductive member, so as to separate the second accommodating groove from the second conductive member, thereby preventing the electrolytic solution entering the second groove from contacting the second conductive member and reducing leakage of the electrolytic solution.

[0059] In some embodiments, the first cover plate is provided with a stress relief groove, and the stress relief groove is located in an outer peripheral region of the first cover plate.

[0060] In the above technical solution, by providing a stress relief groove on the first cover plate, the stress generated during the processing of the first cover plate or the electrical connection between the first cover plate and the first post terminal can be released, so as to improve the deformation or damage of the first cover plate caused by stress and other related problems.

[0061] In some embodiments, the battery cell further includes: a support, located in the housing and on a side of the active substance-coated part proximal to the first post terminal. The support is provided with a clearance hole configured to provide clearance for the conductive part, and the conductive part is suitable for extending to a side of the support distal to the active substance-coated part through the clearance hole.

[0062] In the above technical solution, by providing the support on the side of the active substance-coated part proximal to the first post terminal, the active substance-coated part can be separated from the housing by the support, thereby improving the reliability of the battery cell. Furthermore, by providing the clearance hole on the support, the conductive part can be guided and constrained to fit to the first post terminal by passing through the clearance hole, thereby eliminating the need for the conductive part to bypass the edge of the support to approach the first post terminal, which can not only simplify the arrangement of the conductive part, save the material of the conductive part, and reduce the cost, but also reduce the risk of short-circuit connection between the conductive part and the active substance-coated part by supporting and guiding the conductive part to fit to the first post terminal through the support, so as to further improve the reliability of the battery cell.

[0063] In some embodiments, the post terminal body is provided with a first accommodating part, the support is provided with a guiding part, the guiding part defines, in an enclosing manner, at least a part of the clearance hole, and the guiding part at least partially extends to the first accommodating part.

[0064] In the above technical solution, the guiding part protrudes from the support and extends into the first accommodating part, and at least a part of the clearance hole is formed in the guiding part, such that when the conductive part is provided in the clearance hole in a penetrating manner, at least a part of the conductive part can be easily accommodated in the first accommodating part, thereby improving the assembly efficiency of the conductive part; meanwhile, by providing the guiding part, the fits between the support and the first post terminal, and between the support and the conductive part are tighter and more reliable, such that the structure of the battery cell becomes more compact, which is more conducive to improving the energy density of the battery cell.

[0065] In some embodiments, the clearance hole includes a first hole segment and a second hole segment, the second hole segment is located on a side of the first hole segment proximal to the active substance-coated part, and the cross-sectional area of the second hole segment gradually increases in a direction distal to the first hole segment. The active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive

part includes a tab part electrically connected to the current collector, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, at least a part of the first gathering part is accommodated in the second hole segment, and the second gathering part is provided in the first hole segment in a penetrating manner.

[0066] In the above technical solution, by configuring the clearance hole to include a second hole segment that gradually expands in the direction toward the active substance-coated part, it is convenient for the second hole segment to accommodate more first gathering parts, so as to improve the compactness of the fit between the support and the battery cell assembly, such that the overall volume of the battery cell is smaller, and the battery can accommodate a larger number of battery cells, thereby improving the volumetric energy density of the battery.

[0067] In some embodiments, the support is of an integrated structure; or, the support is of a split-type structure and includes a first support and a second support that are separable, and a clearance hole is defined between the first support and the second support.

[0068] In the above technical solution, the clearance hole is formed in the form of a through hole penetrating the support. Therefore, the support of an integrated structure is easy to process and has relatively good reliability, which facilitates the assembly of the support and the housing assembly, thereby improving assembly efficiency and fitting stability. When the support is of a split-type structure, the support includes a first support and a second support that are separable. The first support and the second support are both of a long-stripped plate-shaped structure and can be detachably connected, for example, in insertion fit or snap fit, to facilitate the assembly. The clearance hole is defined by the fit of the first support and the second support. When the support and the battery cell assembly are assembled, there is no need to pass the conductive part from one end of the clearance hole to the other end. Instead, the first support and the second support can be fitted at the position of the conductive part to clamp the conductive part, such that the clearance hole surrounds the conductive part, thereby facilitating the assembly of the support and the battery cell assembly and improving the assembly efficiency.

[0069] In some embodiments, the housing is provided with a first wall, a mounting hole is formed on the first wall, and the post terminal body is provided in the mounting hole; taking a plane where the cross-section of the mounting hole is located as a projection plane, in a direction perpendicular to the projection plane, a ratio of a projection area of the first welding part on the projection plane to a projection area of the first wall on the projection plane is in a range of 0.1%-1%.

[0070] In the above technical solution, by setting the ratio of the projection area of the first welding part on the projection plane to the projection area of the first wall on the projection plane to be in the range of 0.1%-1%, the effective current passage area between the conductive part and the post terminal body is increased, the current passage area of the first post terminal is increased, and the current passage capacity of the first post terminal is increased, which is conducive to increasing the charging speed of the battery cell, and also conducive to increasing the thermal diffusion capacity of the first post terminal to a certain extent and reducing the current passage temperature of the first post terminal, and thus helping to reduce the risk of loss of control of the battery cell.

[0071] In some embodiments, the housing is provided with a mounting hole, the post terminal body includes a post terminal body part, a first limiting stage part, and a second limiting stage part that are integrally formed, the post terminal body part is provided in the mounting hole in a penetrating manner, the first limiting stage part and the second limiting stage part are provided at both ends of the post terminal body part in an axial direction of the mounting hole, the first limiting stage part is in limiting fit to an outer side of the housing, and the second limiting stage part is in limiting fit to an inner side of the housing, such that the post terminal body is riveted to the housing.

[0072] In the above technical solution, the first limiting stage part and the second limiting stage

part separately extend in a radial direction of the mounting hole to the radial outer side of the peripheral wall of the mounting hole. The first limiting stage part can limit the movement of the first post terminal relative to the housing in a direction toward the inner side of the housing, whereas the second limiting stage part can limit the movement of the first post terminal relative to the housing in a direction toward the outer side of the housing, such that the first post terminal is easy to be reliably mounted at the mounting hole through the first limiting stage part and the second limiting stage part, so as to realize the fixed connection between the first post terminal and the housing and facilitate the assembly of the first post terminal and the housing; moreover, there is no need to adopt other connection modes between the first post terminal and the housing, that is, it is convenient to achieve a reliable connection between the first post terminal and the housing, which is conducive to simplifying the structure of the housing assembly and simplifying the assembly process of the housing assembly.

[0073] Moreover, since the post terminal body part, the first limiting stage part, and the second limiting stage part are integrally formed, components can be saved and costs can be reduced. Meanwhile, it is convenient to ensure the strength of the first post terminal, such that the first post terminal, after being fitted to the housing, is not easy to separate from the housing due to vibration or external pulling during the charging and discharging processes of the battery cell, and also not easy to crack or be damaged due to vibration or external pulling, which can improve the stability and reliability of the housing assembly, thereby improving the stability and reliability of the battery cell.

[0074] In some embodiments, the battery cell further includes: an outer insulating member wrapped outside the housing. In the above technical solution, the outer insulating member plays an insulating role and is configured to separate the housing from external components. For example, the outer insulating member is a blue film.

[0075] In some embodiments, the housing is provided with a first wall, a mounting hole is formed on the first wall, the post terminal body is provided in the mounting hole, the battery cell further includes a patch covering an outer side of the first wall, the outer insulating member includes an outer insulating film, the outer insulating film is an integrated film, the outer insulating film is provided with a connecting part, and the connecting part extends to an outer side of the first wall and is connected to the patch.

[0076] In the above technical solution, the connecting part can be stacked with the patch in the axial direction of the mounting hole to facilitate the connection between the connecting part and the patch. At this time, the outer insulating film and the patch can at least separate the first post terminal and the housing on the first wall, so as to improve the insulation reliability between the first post terminal and the housing, thereby improving the reliability of the battery cell. For example, the connecting part can extend around the outer periphery of the first wall to form an annular shape, such that the outer insulating member is wrapped outside all walls of the housing except the first wall. The connecting part is provided between the patch and the first wall, such that the patch plays a certain protective role in the connection between the connecting part and the patch.

[0077] In some embodiments, a minimum distance between an edge of the outer insulating film and the first post terminal is greater than or equal to 3 mm. In this technical solution, a creepage distance between the first post terminal and the housing may be greater than or equal to 3 mm, which is conducive to improving the insulation and voltage resistance performance between the first post terminal and the housing.

[0078] In a second aspect, the embodiments of the present application provide a battery, which includes the battery cell described above.

[0079] In the above technical solution, by locating the first welding part of the battery cell at least partially on the side of the post terminal body away from the active substance-coated part, the first welding part can be kept away from the active substance-coated part. When the post terminal body

and the conductive part are welded at high temperature to form the first welding part, since the first welding part is kept away from the active substance-coated part as a high-temperature heat source, the influence of the high temperature generated by the welding on the active substance-coated part can be reduced, and the probability of damage to the active substance-coated part can be reduced, thereby improving the reliability of the battery cell. In addition, after the post terminal body is welded to the conductive part inside the housing, when the battery cell is welded to the busbar component, the first cover plate can play a protective role by shielding the first welding part, which reduces the influence of the high temperature generated when the post terminal body is welded to the busbar component on the first welding part, thereby improving the reliability of the first welding part between the post terminal body and the conductive part. It can be seen that by providing the battery including the battery cell described above, the reliability of the battery can be improved.

[0080] In some embodiments, the battery further includes: a plurality of battery cells; and a busbar component, the busbar component being electrically connected to the first post terminals of at least two battery cells, the first post terminals of the same polarity of each of the battery cells being electrically connected to the busbar component through a second welding part, and the second welding part being formed on the first cover plate. The housing includes a first wall, a mounting hole is formed on the first wall, and the post terminal body is provided in the mounting hole; on the cross-section of the mounting hole, an orthographic projection area of the second welding part is greater than or equal to 0.2% of an orthographic projection area of the first wall.

[0081] In the above technical solution, by setting the orthographic projection area of the second welding part between the busbar component and the corresponding first post terminal on the cross-section of the mounting hole to be greater than or equal to 0.2% of the orthographic projection area of the first wall, the effective current passage area between the busbar component and the corresponding first post terminal is greater than or equal to 0.2% of the orthographic projection area of the first wall, so as to increase the effective current passage area of the busbar component and the first post terminal, increase the current passage area of the first post terminal, and increase the current passage capacity of the first post terminal, which is conducive to increasing the charging speed of the battery cell, and also conducive to increasing the thermal diffusion capacity of the first post terminal to a certain extent, reducing the current passage temperature of the first post terminal, and thus helping to reduce the risk of loss of control of the battery cell.

[0082] In some embodiments, in a direction perpendicular to the cross-section of the mounting hole, a part of the busbar component overlapping with the post terminal body of the same polarity is a weldable region of the busbar component, and an orthographic projection area of the second welding part on the cross-section of the mounting hole is greater than or equal to 0.2 of the weldable region of the busbar component.

[0083] In the above technical solution, the weldable region of the busbar component is stacked with the post terminal body in the direction perpendicular to the projection plane, or in other words, in the direction perpendicular to the projection plane, the projection of the weldable region of the conductive part on the cross-section of the mounting hole overlaps with at least a part of the projection of the post terminal body on the cross-section of the mounting hole. As such, the weldable region of the busbar component can be understood as a region provided by the busbar component that can be welded to the post terminal body, and therefore the area of the weldable region must be greater than or equal to the orthographic projection area of the second welding part on the projection plane. As such, the projection area of the second welding part on the projection plane accounts for an appropriate proportion, so as to facilitate the welding operation between the busbar component and the post terminal body under the premise of appropriately increasing the current passage capacity and thermal diffusion capacity of the post terminal body.

[0084] In some embodiments, in a direction perpendicular to the cross-section of the mounting hole, a part of the busbar component overlapping with the first post terminal of the same polarity is

a weldable region of the busbar component, and the area of the weldable region of the busbar component is greater than or equal to 20% of the orthographic projection area of the busbar component on the cross-section of the mounting hole.

[0085] In the above technical solution, the weldable region of the busbar component overlaps with the first post terminal of the same polarity in the direction perpendicular to the cross-section of the mounting hole, or in other words, in the direction perpendicular to the cross-section of the mounting hole, the orthographic projection of the weldable region of the busbar component on the cross-section of the mounting hole overlaps with at least a part of the orthographic projection of the first post terminal of the same polarity on the cross-section of the mounting hole. As such, the weldable region of the busbar component can be understood as a region provided by the busbar component that can be welded to the first post terminal, and therefore the area of the weldable region of the busbar component must be greater than or equal to the orthographic projection area of the second welding part on the cross-section of the mounting hole. The area of the weldable region of the busbar component is greater than or equal to 20% of the orthographic projection area of the busbar component on the cross-section of the mounting hole. In this way, the busbar component can provide a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal.

[0086] In some embodiments, the area of the weldable region of the busbar component is less than or equal to 50% of the orthographic projection area of the busbar component on the cross-section of the mounting hole.

[0087] In the above technical solution, by setting the area of the weldable region of the busbar component to be greater than or equal to 50% of the orthographic projection area of the busbar component on the cross-section of the mounting hole, it is conducive to further taking into account the current passage capacity of the first post terminal and the convenience of the welding operation.

[0088] In a third aspect, the embodiments of the present application provide an electrical apparatus, which includes the battery described above.

Description

BRIEF DESCRIPTION OF THE DRAWINGS

[0089] In order to more clearly illustrate the technical solutions in embodiments of the present disclosure, the drawings required for use in the embodiments will be briefly described below. It should be understood that the following drawings only illustrate some embodiments of the present disclosure and therefore shall not be considered as limiting the scope of the present disclosure, and other related drawings can be derived from these drawings by those of ordinary skill in the art without creative efforts.

[0090] FIG. **1** is a schematic structural diagram of a vehicle provided according to some embodiments of the present application;

[0091] FIG. **2** is an exploded view of the structure of a battery according to some embodiments of the present application;

[0092] FIG. **3** is a schematic structural diagram of a battery cell according to some embodiments of the present application;

[0093] FIG. **4** is an orthographic projection view of a battery cell according to some embodiments of the present application;

[0094] FIG. **5** is a cross-sectional view along the line A-A in FIG. **4**;

[0095] FIG. **6** is a schematic structural diagram of a battery cell according to some embodiments of the present application;

[0096] FIG. **7** is an assembly diagram of a second post terminal, a battery cell assembly, and a housing according to some embodiments of the present application;

[0097] FIG. **8** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0098] FIG. **9** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0099] FIG. **10** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0100] FIG. **11** is a partial cross-sectional schematic diagram of a battery cell assembly according to some embodiments of the present application;
[0101] FIG. **12** is a diagram of various tab gathering solutions of a battery cell assembly according to some embodiments of the present application;
[0102] FIG. **13** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0103] FIG. **14** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0104] FIG. **15** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0105] FIG. **16** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0106] FIG. **17** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0107] FIG. **18** is a partial enlarged view of the portion B in FIG. **3**;
[0108] FIG. **19** is an orthographic projection view of various first post terminals according to some embodiments of the present application;
[0109] FIG. **20** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0110] FIG. **21** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0111] FIG. **22** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0112] FIG. **23** is an exploded view of the structure of a battery cell according to some embodiments of the present application;
[0113] FIG. **24** is a partial cross-sectional schematic diagram of a housing assembly according to some embodiments of the present application;
[0114] FIG. **25** is an exploded view of the structure of the housing assembly shown in FIG. **24**;
[0115] FIG. **26** is an exploded view of the structure of the first cover plate shown in FIG. **25**;
[0116] FIG. **27** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0117] FIG. **28** is an exploded view of the structure of the battery cell shown in FIG. **27**;
[0118] FIG. **29** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0119] FIG. **30** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0120] FIG. **31** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0121] FIG. **32** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0122] FIG. **33** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0123] FIG. **34** is a schematic diagram of the fit between a battery cell assembly and a support according to some embodiments of the present application;

[0124] FIG. **35** is a cross-sectional view along the line C-C in FIG. **34**;
[0125] FIG. **36** is a schematic structural diagram of an integrated support according to some embodiments of the present application;
[0126] FIG. **37** is a schematic structural diagram of a split-type support according to some embodiments of the present application;
[0127] FIG. **38** is a partial cross-sectional schematic diagram of a battery cell assembly and a support according to some embodiments of the present application;
[0128] FIG. **39** is an exploded view of the structure of a battery cell assembly, a support, and a housing assembly according to some embodiments of the present application;
[0129] FIG. **40** is an exploded view of the structure of a first post terminal, a housing, and a sealing gasket according to some embodiments of the present application;
[0130] FIG. **41** is an assembly diagram of the first post terminal, the housing, and the sealing gasket shown in FIG. **40**;
[0131] FIG. **42** is a schematic structural diagram of a first post terminal according to some embodiments of the present application;
[0132] FIG. **43** is an assembly diagram of a first post terminal, a housing, and a sealing gasket according to some embodiments of the present application;
[0133] FIG. **44** is an exploded view of the structure of the first post terminal shown in FIG. **43**;
[0134] FIG. **45** is an orthographic projection view of a battery cell according to some embodiments of the present application;
[0135] FIG. **46** is an orthographic projection view of a battery cell according to some embodiments of the present application;
[0136] FIG. **47** is a cross-sectional view along the line D-D in FIG. **46**;
[0137] FIG. **48** is a cross-sectional schematic diagram of a housing assembly according to some embodiments of the present application;
[0138] FIG. **49** is a cross-sectional schematic diagram of a housing assembly according to some embodiments of the present application;
[0139] FIG. **50** is an orthographic projection view of a battery cell according to some embodiments of the present application;
[0140] FIG. **51** is a cross-sectional view along the line E-E in FIG. **50**;
[0141] FIG. **52** is a partial cross-sectional schematic diagram of a battery cell according to some embodiments of the present application;
[0142] FIG. **53** is a schematic structural diagram of a housing cover according to some embodiments of the present application;
[0143] FIG. **54** is a first partial schematic diagram of a battery cell according to some embodiments of the present application;
[0144] FIG. **55** is a second partial schematic diagram of a battery cell according to some embodiments of the present application;
[0145] FIG. **56** is a schematic diagram of a battery cell according to an embodiment of the present application;
[0146] FIG. **57** is a schematic diagram of the electrical connection between a battery cell and a busbar component according to an embodiment of the present application;
[0147] FIG. **58** is a schematic diagram of the electrical connection between a busbar component and a post terminal according to an embodiment of the present application;
[0148] FIG. **59** is a schematic diagram of the connection between the first polarity post terminal and the conductive part of the battery cell shown in FIG. **56**;
[0149] FIG. **60** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0150] FIG. **61** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;

[0151] FIG. **62** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0152] FIG. **63** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0153] FIG. **64** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0154] FIG. **65** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0155] FIG. **66** is a schematic diagram of a battery cell assembly according to an embodiment of the present application;
[0156] FIG. **67** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0157] FIG. **68** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0158] FIG. **69** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0159] FIG. **70** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0160] FIG. **71** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0161] FIG. **72** is a schematic diagram of the arrangement of a first polarity post terminal and a second polarity post terminal according to an embodiment of the present application;
[0162] FIG. **73** is a schematic diagram of the mounting of a first polarity post terminal according to an embodiment of the present application;
[0163] FIG. **74** is a schematic diagram of a battery cell according to an embodiment of the present application;
[0164] FIG. **75** is a schematic diagram of the connection between the outer insulating member and the patch shown in FIG. **74**.

REFERENCE

Numerals

[0165] electrical apparatus **1000**; battery **100**; controller **200**; motor **300**; [0166] first direction Z; second direction X; third direction Y; [0167] axial direction R of the first post terminal; [0168] battery cell **10**; case **20**; first case **201**; second case **202**; busbar component **30**; [0169] housing assembly **1**; [0170] housing **11**; first wall **110**; second wall **120**; housing body **111**; housing cover **112**; mounting hole **113**; sub-hole **1131**; second mounting hole **114**; [0171] first post terminal **12**; first polarity post terminal **12**A; second polarity post terminal **12**B; [0172] first accommodating part **121**; [0173] first accommodating groove **12110**; first end wall **12111**; first recess **12112**; first side wall **12113**; [0174] second accommodating groove **12120**; second end wall **12121**; second recess **12122**; second side wall **12123**; [0175] first groove segment **12124**; second groove segment **12125**; inclined guiding surface **12126**; step surface **12127**; [0176] first perforation **12130**; third accommodating groove **12140**; fourth accommodating groove **12150**; [0177] second perforation **12160**; third perforation **12170**; [0178] post terminal inner end surface **122**; post terminal outer end surface **123**; [0179] first post terminal part **124**; second post terminal part **125**; [0180] first groove **126**; spacer part **127**; [0181] stopper part **1281**; penetration part **1282**; flange part **1283**; post terminal body **1201**; post terminal body part **12***a*; first limiting stage part **12***b*; second limiting stage part **12***c*; first part **128**; second part **129**; [0182] first part **1291**; second part **1292**; [0183] first cover plate **13**; first conductive member **131**; second groove **1311**; second conductive member **132**; stress relief groove **133**; second accommodating part **134**; fifth accommodating groove **1341**; third end wall **13411**; third side wall **13412**; [0184] second cover plate **14**; second post terminal **15**; pressure relief part **16**; clearance groove **18**; [0185] first sealing gasket **191**; second sealing gasket **192**;

[0186] battery cell assembly **2**; electrode assembly **2***a;* [0187] active substance-coated part **21**; current collector **211**; active substance layer **212**; conductive part **22**; [0188] tab part **221**; tab plate **2211**; first gathering part **2212**; second gathering part **2213**; adapting piece **222**; [0189] support **3**; clearance hole **31**; first hole segment **311**; second hole segment **312**; [0190] guiding part **32**; first support **33**; second support **34**; housing entry guiding surface **35**; [0191] body part **36**; extending part **37**; third groove **38**; positioning groove **39**; [0192] inner insulating member **4**; body part **41**; connecting part **42**; outer insulating member **5**; outer insulating film **52**; connecting part **51**; [0193] sealing member **6**; first welding part **71**; second welding part **72**; insulating and sealing component **8**; insulating member **81**; sealing member **82**; patch **9**.

DETAILED DESCRIPTION

[0194] To make the objectives, technical solutions, and advantages of the embodiments of the present application clearer, the technical solutions in the embodiments of the present application will be clearly and completely described below with reference to the drawings in the embodiments of the present application. It is obvious that the described embodiments are some, but not all, embodiments of the present application. Based on the embodiments in the present application, all other embodiments obtained by those of ordinary skill in the art without creative work shall fall within the protection scope of the present application.

[0195] Unless otherwise defined, all technical and scientific terms used in the present application have the same meaning as commonly understood by those of ordinary skill in the art to which the present application belongs. The terms used in the specification of the present application are only used to describe specific embodiments and are not intended to limit the present application. The terms “include”, “comprise”, “have”, and any variants thereof in the specification and claims of the present application and the descriptions of the above drawings are intended to cover a non-exclusive inclusion. The terms “first”, “second”, and the like in the specification and claims of the present application and the above drawings are defined to distinguish different objects and are not intended to describe a specific order or priority.

[0196] Reference in the present application to “embodiment” means that a particular feature, structure, or characteristic described in connection with the embodiment can be included in at least one embodiment of the present application. The references of the word in the context of the specification do not necessarily refer to the same embodiment, nor to separate or alternative embodiments exclusive of other embodiments.

[0197] In the description of the present application, it should be noted that unless otherwise explicitly specified or limited, the terms “mount”, “connect”, “connection”, and “attachment” shall be construed broadly and may be, for example, fixed connection, detachable connection, or integrated connection, or direct connection, indirect connection via an intermediate, or internal communication between two elements. For those of ordinary skill in the art, the specific meanings of the aforementioned terms in the present application can be understood according to specific conditions.

[0198] In the present application, the term “and/or” is only an association relationship that describes the associated objects, and indicates that there may be three relationships. For example, A and/or B may indicate that: only A is present, both A and B are present, and only B is present. In addition, the character “/” in the present application generally indicates an “or” relationship between the associated objects before and after the “/”.

[0199] In the embodiments of the present application, the same reference numerals represent the same components, and for the sake of brevity, detailed descriptions of the same components are omitted in different embodiments. It should be understood that the thickness, length, width, and other dimensions of various components in the embodiments of the present application shown in the drawings, as well as the overall thickness, length, width, and other dimensions of the integrated device are only exemplary and should not impose any limitation on the present application.

[0200] The term “plurality” used in the present application refers to two or more (including two).

[0201] In the present application, battery cells may include lithium-ion secondary batteries, lithium-ion primary batteries, lithium-sulfur batteries, sodium-lithium-ion batteries, sodium-ion batteries, magnesium-ion batteries, etc. This is not limited in the embodiments of the present application. The battery cell may be cylindrical, flat, rectangular parallelepiped-shaped, or in other shapes, which is also not limited in the embodiments of the present application. According to the packaging method, battery cells are typically divided into three types: cylindrical battery cells, square battery cells, and soft-pack battery cells, which are not limited in the embodiments of the present application.

[0202] The battery mentioned in the embodiments of the present application refers to a single physical module including one or more battery cells to provide higher voltage and capacity. For example, the battery mentioned in the present application may be a battery module, a battery pack, or the like. A battery module generally includes a plurality of battery cells. A battery pack generally includes a case used for encapsulating one or more battery cells or one or more battery modules. The case can prevent liquid or other foreign substances from affecting the charging or discharging of the battery cells.

[0203] Illustratively, a battery cell may generally include a housing, a battery cell assembly and an electrolytic solution. The housing is configured to accommodate the battery cell assembly and the electrolytic solution, and at least one positive electrode post terminal and at least one negative electrode post terminal are provided on the housing. The battery cell assembly includes one or more electrode assemblies, and the electrode assembly is formed by stacking or winding a positive electrode plate, a negative electrode plate, and a separation film.

[0204] The positive electrode plate may generally include a positive electrode current collector and a positive electrode active substance layer. The positive electrode current collector is directly or indirectly coated with the positive electrode active substance layer, the positive electrode current collector not coated with the positive electrode active substance layer protrudes from the positive electrode current collector coated with the positive electrode active substance layer, the positive electrode current collector not coated with the positive electrode active substance layer serves as a positive electrode tab plate, and a plurality of positive electrode tab plates are stacked together and electrically connected to the positive electrode post terminal. Illustratively, the plurality of positive electrode tab plates stacked together may be directly welded to the positive electrode post terminal to form an electrical connection. Alternatively, the battery cell assembly may further include a positive electrode adapting piece, the plurality of positive electrode tab plates stacked together are welded to one end of the positive electrode adapting piece, and the other end of the positive electrode adapting piece is welded to the positive electrode post terminal to form an electrical connection between the positive electrode tab plates and the positive electrode post terminal.

[0205] The negative electrode plate may generally include a negative electrode current collector and a negative electrode active substance layer. The negative electrode current collector is directly or indirectly coated with the negative electrode active substance layer, the negative electrode current collector not coated with the negative electrode active substance layer protrudes from the negative electrode current collector coated with the negative electrode active substance layer, the negative electrode current collector not coated with the negative electrode active substance layer serves as a negative electrode tab plate, and a plurality of negative electrode tab plates are stacked together and electrically connected to the negative electrode post terminal. Illustratively, the plurality of negative electrode tab plates stacked together may be directly welded to the negative electrode post terminal to form an electrical connection. Alternatively, the battery cell assembly may further include a negative electrode adapting piece, the plurality of negative electrode tab plates stacked together are welded to one end of the negative electrode adapting piece, and the other end of the negative electrode adapting piece is welded to the negative electrode post terminal to form an electrical connection between the negative electrode tab plates and the negative electrode post terminal. The material of the separation film is not limited, such as polypropylene or

polyethylene.
[0206] Meanwhile, a battery cell primarily works by the movement of metal ions between the positive electrode plate and the negative electrode plate. Taking lithium-ion batteries as an example, the material of the positive electrode current collector may be aluminum, the material of the positive electrode active substance layer may be lithium cobaltate, lithium iron phosphate, ternary lithium, or lithium manganate, etc., the material of the negative electrode current collector may be copper, and the material of the negative electrode active substance layer may be carbon or silicon, etc. During the charging and discharging processes, Li+ is intercalated or deintercalated back and forth between the two electrodes: during charging, Li+ is deintercalated from the positive electrode, and intercalated into the negative electrode through the electrolyte, and the negative electrode is in a lithium-rich state; during discharging, the process is reversed.
[0207] In recent years, new energy vehicles have developed by leaps and bounds. In the field of electric vehicles, power batteries, as the power source of electric vehicles, play an irreplaceable and important role. The battery consists of a case and a plurality of battery cells accommodated in the case. Batteries, as core components of new energy vehicles, have high requirements both in terms of safety and service life.
[0208] In the related art, during the manufacturing of a battery cell, an active substance layer is coated on a current collector and then the current collector is cut to obtain an electrode plate consisting of a current collector coated with an active substance layer (referred to as an active substance-coated part) and a current collector not coated with an active substance layer (referred to as a tab plate). Then, the positive and negative electrode plates and a separation film are stacked or wound in sequence to obtain an electrode assembly. In the electrode assembly, a plurality of tab plates are stacked to form a tab part. The tab part itself forms a conductive part, or the tab part is connected to an adapting piece to form a conductive part. The active substance-coated part and the conductive part form a battery cell assembly. The housing of the battery cell is provided with a post terminal, and a surface of the post terminal on a side facing the active substance-coated part is a post terminal inner end surface. In the related art, the conductive part is generally welded to the post terminal inner end surface.
[0209] The inventors find that in the assembly process of the battery cell, the tab is first welded to the post terminal inner end surface; since a first welding part is located on the post terminal inner end surface, and proximal to the interior of the battery cell, it is difficult to completely clean metal residues in the welding process, which causes the residual metal residues to fall into the active substance-coated part and overlap the electrode plate of opposite polarity, thereby causing an internal short circuit in the battery cell and reducing the reliability of the battery cell; moreover, high temperature will be generated in welding process of the tab to the post terminal, which will cause the high temperature when the tab forms a weld mark to burn the active substance-coated part in the housing, resulting in loss of the active substance coating on the active substance-coated part, thereby reducing the performance of the battery cell and failing to extend the service life of the battery cell. In another aspect, in the assembly process of the battery cell into a battery, the post terminal of the battery cell needs to be connected to a post terminal of another battery cell by welding through a busbar component; since high temperature is also generated in the welding process, the high temperature formed when the post terminal is welded to the external busbar component will affect the welding part of the tab and the post terminal, which is likely to cause the welding part to be melted again and loosened, thereby reducing the performance of the battery cell.
[0210] Based on the above considerations, in order to solve the internal short circuit problem caused by metal residues produced during welding, the problem of damage to the active substance-coated part due to the high temperature formed during the welding of the tab, and the problem of affecting the welding part of the tab and the post terminal when the post terminal of the battery cell is welded to the busbar component during the assembly of the battery cell into a battery, the inventors have designed a battery cell after in-depth research, which includes a housing assembly

and a battery cell assembly. The housing assembly includes a housing and a first post terminal, the first post terminal includes a post terminal body and a first cover plate, the post terminal body is mounted in the housing, and the first cover plate is provided in the post terminal body. The battery cell assembly includes an active substance-coated part and a conductive part connected to the active substance-coated part. The active substance-coated part is accommodated in the housing, and the conductive part is connected to the post terminal body through a first welding part. By locating the first welding part at least partially on a side of the post terminal body away from the active substance-coated part, the metal residues generated in the welding process can be reduced from entering the battery cell, and to a certain extent, the metal residues can be prevented from overlapping the positive and negative electrode plates, thereby reducing the possibility of internal short circuit in the battery cell. By allowing the first welding part to be distant from the active substance-coated part, the influence of the high temperature generated by the welding on the active substance-coated part can be reduced, thereby reducing the probability of damage to the active substance-coated part. In addition, after the post terminal body is welded to the conductive part inside the housing, when the battery cell is welded to the busbar component, the first cover plate can play a protective role by shielding the first welding part, which reduces the influence of the high temperature generated when the post terminal body is welded to the busbar component on the first welding part, thereby improving the reliability of the first welding part between the post terminal body and the conductive part.

[0211] The battery disclosed in the embodiments of the present application may, but is not limited to, be used in electrical apparatus such as vehicles, ships, or aircraft. The power system of the electrical apparatus may be composed of the battery disclosed in the present application, and the like.

[0212] The embodiments of the present application provide an electrical apparatus using a battery as a power source. The electrical apparatus may be, but not limited to, a mobile phone, a tablet, a laptop computer, an electric toy, an electric tool, an electric bicycle, an electric vehicle, a ship, a spacecraft, or the like. The electric toy may include a stationary or mobile electric toy, such as a game console, an electric car toy, an electric ship toy, and an electric airplane toy, and the spacecraft may include an airplane, a rocket, a space shuttle, a spaceship, and the like.

[0213] For ease of explanation in the following embodiments, the structures of the electrical apparatus **1000**, the battery **100** and the battery cell **10** of the present application will be described by taking the electrical apparatus as a vehicle **1000** as an example.

[0214] Referring to FIG. **1**, FIG. **1** is a schematic structural diagram of a vehicle **1000** according to some embodiments of the present application. The vehicle **1000** may be a fuel vehicle, a gas vehicle or a new energy vehicle. The new energy vehicle may be a pure electric vehicle, a hybrid vehicle, an extended-range vehicle, or the like. A battery **100** is provided inside the vehicle **1000**, and the battery **100** may be provided at a bottom, a head, or a tail of the vehicle **1000**. The battery **100** may be configured to power the vehicle **1000**. For example, the battery **100** may serve as an operation power source of the vehicle **1000**. The vehicle **1000** may further include a controller **200** and a motor **300**. The controller **200** is used for controlling the battery **100** to power the motor **300**, e.g., for operation power needed by the vehicle **1000** for start-up, navigation, and driving.

[0215] In some embodiments of the present application, the battery **100** may not only serve as an operation power source for the vehicle **1000**, but also as a driving power source for the vehicle **1000** to, instead of or in part instead of fuel or natural gas, provide driving power for the vehicle **1000**.

[0216] Referring to FIG. **2**, FIG. **2** is an exploded view of the structure of a battery **100** according to some embodiments of the present application. The battery **100** includes a case **20** and a plurality of battery cells **10**. The battery cells **10** are configured to be accommodated in the case **20**. The case **20** is configured to provide an assembly space for the battery cell **10**, and the case **20** may be in various structures. In some embodiments, the case **20** may include a first case body **201** and a

second case body **202**. The first case body **201** and the second case body **202** are mutually lidded onto each other. The first case body **201** and the second case body **202** jointly define an assembly space for accommodating the battery cells **10**. The second case body **202** may be of a hollow structure with one end open, and the first case body **201** may be of a plate-shaped structure. The first case body **201** is lidded onto the open side of the second case body **202**, such that the first case body **201** and the second case body **202** jointly define an assembly space; the first case body **201** and the second case body **202** may also both be of a hollow structure with one side open, and the open side of the first case body **201** is lidded onto the open side of the second case body **202**. Certainly, the case **20** formed by the first case body **201** and the second case body **202** may be in various shapes, such as a cylinder and a rectangular parallelepiped.

[0217] In the battery **100**, a plurality of battery cells **10** may be connected in series, in parallel, or in series-parallel. The series-parallel connection means that both series connection and parallel connection are present for the connection among the plurality of battery cells **10**. The plurality of battery cells **10** may be directly connected in series, in parallel, or in series-parallel, and then the whole formed by the plurality of battery cells **10** is accommodated in the case **20**. Certainly, it may be that in the battery **100**, the plurality of battery cells **10** are first connected in series, in parallel, or in series-parallel to form battery modules, and then the plurality of battery cell modules are connected in series, in parallel, or in series-parallel to form a whole and accommodated in the case **20**. The battery **100** may further include other structures. For example, the battery **100** may further include a busbar component for achieving electrical connection between the plurality of battery cells **10**.

[0218] Referring to FIG. **2**, FIG. **2** is a schematic partial structure diagram of a battery **100** according to some embodiments of the present application. The battery **100** includes a plurality of rows of battery cells **10**. The plurality of rows of battery cells **10** are arranged in a first direction X. Each row of battery cells **10** includes a plurality of battery cells **10** arranged in a second direction Y. The first direction X and the second direction Y are the length direction of the case **20** and the width direction of the case **20**, respectively, and the first direction X and the second direction Y are perpendicular to each other.

[0219] Each battery cell **10** may be a secondary battery or a primary battery; it may also be a lithium-sulfur battery, a sodium-ion battery, or a magnesium-ion battery, but is not limited thereto. The battery cell **10** may be cylindrical, flat, rectangular, or in other shapes. Illustratively, in FIG. **3**, the battery cell **10** is in the shape of a rectangular parallelepiped. In the related art, a battery cell may generally include a housing and a battery cell assembly. A positive electrode post terminal and a negative electrode post terminal are provided on the housing, and the battery cell assembly is provided in the housing. The battery cell assembly may generally include at least two electrode plates, and a part of the electrode plates are positive electrode plates, and the rest are negative electrode plates. A positive electrode tab is provided on the positive electrode plate, a negative electrode tab is provided on the negative electrode plate, and a separating film is provided between the positive electrode plate and the negative electrode plate. The positive electrode tab is electrically connected to the positive electrode post terminal, and the negative electrode tab is electrically connected to the negative electrode post terminal. The housing is filled with an electrolytic solution.

[0220] Referring to FIGS. **3-5**, the embodiments of the present application provide a battery cell **10**, which includes a housing assembly **1** and a battery cell assembly **2**. The housing assembly **1** includes a housing **11** and a first post terminal **12**. The first post terminal **12** includes a post terminal body **1201** and a first cover plate **13**. The post terminal body **1201** is mounted in the housing **11**, and the first cover plate **13** is provided on the post terminal body **1201**. The battery cell assembly **2** includes an active substance-coated part **21** and a conductive part **22** connected to the active substance-coated part **21**. The active substance-coated part **21** is accommodated in the housing **11**, and the conductive part **22** is connected to the post terminal body **1201** through a first

welding part **71**. The shape of the housing **11** is adjusted according to the type of the battery cell **10**, and the type of the battery cell **10** in the embodiments of the present application is not limited. For example, when the battery cell **10** is a square battery, the housing **11** is square, and when the battery cell **10** is a cylindrical battery, the housing **11** is cylindrical. The embodiments of the present application are all described by taking the housing **11** as a square as an example.

[0221] The housing **11** is provided with post terminals for electrical connection to the battery cell assembly **2** to ensure normal charging and discharging operations of the battery cell **10**. Generally, the number of post terminals is at least two, specifically including at least one positive electrode post terminal and at least one negative electrode post terminal. For example, when the number of post terminals is two, one is a positive electrode post terminal and the other is a negative electrode post terminal, and the two are electrically connected to positive and negative output positions of the battery cell assembly **2**, separately. For another example, when the number of post terminals is four, two may be positive electrode post terminals and two may be negative electrode post terminals. In this case, the two positive electrode post terminals are both electrically connected to a positive output position of the battery cell assembly **2**, and the two negative electrode post terminals are both electrically connected to a negative output position of the battery cell assembly **2**.

[0222] Meanwhile, FIG. **6** is a schematic structural diagram of a battery cell **10** according to some embodiments of the present application; FIG. **7** is an assembly diagram of a second post terminal **15**, a battery cell assembly **2**, and a housing **11** according to some embodiments of the present application. Referring to FIGS. **1-7**, in the embodiments of the present application, at least one of the plurality of post terminals is a first post terminal **12**, and the first post terminal **12** may be used as both a positive electrode post terminal and a negative electrode post terminal.

[0223] Regardless of whether the post terminal on the housing **11** is the first post terminal **12** or the second post terminal **15**, the first post terminal **12** and the second post terminal **15** can be both electrically connected to the battery cell assembly **2** to ensure the normal charging and discharging processes of the battery cell **10**. Certainly, in other embodiments of the present application, the housing assembly **1** may be provided with only one post terminal, which is the first post terminal **12**. The first post terminal **12** includes two parts, which are connected in an insulating manner and serve separately as a positive electrode post terminal and a negative electrode post terminal. In order to simplify the description, the following description is mainly made with all the post terminals on the housing **11** being the first post terminals **12** which have the accommodating parts **121** formed therein as an example.

[0224] It should be noted that, referring to FIGS. **6** and **7**, when the housing **11** is provided with a second post terminal **15**, a clearance groove **18** may be provided between the second post terminal **15** and the housing **11** as required, such that at least a part of the conductive part **22** is received in the clearance groove **18**. As such, the space occupied by the conductive part **22** in the housing **11** can also be reduced to a certain extent, which is conducive to improving the energy density and mitigating the problems such as short circuit caused by the redundancy of the conductive part **22**.

[0225] Referring to FIGS. **3-7** again, in the embodiments of the present application, the battery cell assembly **2** includes an active substance-coated part **21** and a conductive part **22**, the active substance-coated part **21** is accommodated in the housing **11**, the active substance-coated part **21** is a part of the battery cell assembly **2** coated with an active substance, which can assist in the deintercalation of metal ions during the charging and discharging processes of the battery cell **10**, the conductive part **22** is a metal structure that electrically connects the active substance-coated part **21** and the post terminal, which is not coated with an active substance, and the post terminal is electrically connected to the active substance-coated part **21** through the conductive part **22** to enable the charging and discharging operations of the battery cell **10**.

[0226] It should be noted that, in the embodiments of the present application, the active substance-coated part **21** is divided into a positive electrode active substance-coated part and a negative electrode active substance-coated part. The positive electrode active substance-coated part includes

a part in which the positive electrode current collector is coated with a positive electrode active substance layer, and the negative electrode active substance-coated part includes a part in which the negative electrode current collector is coated with a negative electrode active substance layer. The conductive part **22** is divided into a positive electrode conductive part and a negative electrode conductive part. The positive electrode conductive part electrically connects the positive electrode active substance-coated part and the positive electrode post terminal, and the negative electrode conductive part electrically connects the negative electrode active substance-coated part and the negative electrode post terminal. It should be noted that the formation method of the first welding part **71** is not limited, and may be, for example, laser welding, friction welding, or ultrasonic welding. Moreover, depending on factors such as the position, angle or structure of the welding part, vertical welding or inclined welding, and overlap welding or edge sealing welding can be selected. Illustratively, the first welding part **71** may be a long strip-shaped weld mark, so as to improve the welding reliability and increase the current passage performance.

[0227] In some embodiments, the conductive part **22** and the post terminal body **1201** are welded together from the outside to form the first welding part **71** therebetween. The conductive part **22** may be located on the inner side of the post terminal body **1201**, or may pass through a via hole on the post terminal body **1201** to be overlapped on the outer side of the post terminal body **1201**. When the conductive part **22** is located on the inner side of the post terminal body **1201**, the first welding part **71** penetrates the post terminal body **1201** to connect to the conductive part **22**; when the conductive part **22** is overlapped on the outer side of the post terminal body **1201**, the first welding part **71** penetrates the conductive part **22** to connect to the post terminal body **1201**. The first welding part **71** is exposed outside the post terminal body **1201**, which may affect the reliability of the weld mark and a subsequent connection to the busbar component. Therefore, the first cover plate **13** is provided to be fitted to the post terminal body **1201** to cover the first welding part **71**.

[0228] In some other embodiments, the conductive part **22** and the post terminal body **1201** are welded together from the inside to form the first welding part **71** therebetween. The conductive part **22** may be located on the inner side of the post terminal body **1201**, or may pass through a via hole on the post terminal body **1201** to be overlapped on the outer side of the post terminal body **1201**. When the conductive part **22** is located on the inner side of the post terminal body **1201**, the first welding part **71** penetrates the conductive part **22** to connect to the post terminal body **1201**; when the conductive part **22** is overlapped on the outer side of the post terminal body **1201**, the first welding part **71** penetrates the post terminal body **1201** to connect to the conductive part **22**. In order to ensure the reliability of welding, the first welding part **71** is provided to penetrate the post terminal body **1201** during welding to increase the welding strength. At this time, the first welding part **71** is exposed outside the post terminal body **1201**, which may affect the reliability of the weld mark and a subsequent connection to the busbar component. Therefore, the first cover plate **13** is provided to be fitted to the post terminal body **1201** to cover the first welding part **71**.

[0229] In the above technical solution, by locating the first welding part **71** at least partially on the side of the post terminal body **1201** away from the active substance-coated part **21**, in one aspect, the metal residues generated in the welding process can be reduced from entering the interior of the battery cell **10**, and to a certain extent, the metal residues can be prevented from overlapping the positive and negative electrode plates, thereby reducing the possibility of internal short circuit in the battery cell **10**. In another aspect, the first welding part **71** can be kept away from the active substance-coated part **21**. When the post terminal body **1201** and the conductive part **22** are welded at high temperature to form the first welding part **71**, since the first welding part **71** is kept away from the active substance-coated part **21** as a high-temperature heat source, the influence of the high temperature generated by the welding on the active substance-coated part **21** can be reduced, and the probability of damage to the active substance-coated part **21** can be reduced, thereby improving the reliability of the battery cell **10**. In addition, after the post terminal body **1201** is

welded to the conductive part **22** inside the housing **11**, when the battery cell **10** is welded to the busbar component **30**, the first cover plate **13** can play a protective role by shielding the first welding part **71**, which reduces the influence of the high temperature generated when the post terminal body **1201** is welded to the busbar component **30** on the first welding part **71**, thereby improving the connection reliability between the post terminal body **1201** and the conductive part **22**.

[0230] For example, there is a certain probability that the high temperature generated when the post terminal body **1201** is welded to the busbar component **30** will cause the first welding part **71** to melt again. At this time, due to the blocking of the first cover plate **13**, the high temperature generated when the post terminal body **1201** is welded to the busbar component **30** is weakened when it is transmitted to the first welding part **71**, thereby making the first welding part **71** between the post terminal body **1201** and the conductive part **22** not easy to be melted again, thereby improving the reliability of the battery cell **10** in the manufacturing process. In some embodiments, referring to FIGS. **8** and **9**, the post terminal body **1201** is provided with a first accommodating groove **12110**, a surface of the first post terminal body **12** on a side facing the active substance-coated part **21** is a post terminal inner end surface **122**, an opening of the first accommodating groove **12110** is formed on the post terminal inner end surface **122**, and the first accommodating groove **12110** is provided with a first end wall **12111** and a first side wall **12113**; the first end wall **12111** is located on a side of the first side wall **12113** distal to the active substance-coated part **21**, at least a part of the conductive part **22** is accommodated in the first accommodating groove **12110**, the first welding part **71** is provided on the first end wall **12111**, and the first cover plate **13** is fitted to the post terminal body **1201** and covers the first welding part **71**.

[0231] Illustratively, the first accommodating groove **12110** is a groove body, and the groove body is a groove-shaped structure having a certain depth. For example, when the first post terminal **12** is provided on the upper end wall of the housing **11** and the post terminal inner end surface **122** is the lower surface of the first post terminal **12**, the first accommodating groove **12110** is formed as an accommodating groove with an opening open downward and a groove wall recessed upward. For another example, when the first post terminal **12** is provided on the lower end wall of the housing **11** and the post terminal inner end surface **122** is the upper surface of the first post terminal **12**, the first accommodating groove **12110** is formed as an accommodating groove with an opening open upward and a groove wall recessed downward.

[0232] In the above technical solution, in one aspect, the provision of the first accommodating groove **12110** on the first post terminal **12** can reduce the weight of the first post terminal **12** to a certain extent, so as to improve the gravimetric energy density of the battery cell **10** and the battery **100**. In another aspect, as the opening of the first accommodating groove **12110** is formed on the post terminal inner end surface **122** and the post terminal inner end surface **122** is the surface of the first post terminal **12** on a side proximal to the active substance-coated part **21**, the first accommodating groove **12110** can be open toward the active substance-coated part **21**, thereby facilitating the conductive part **22** to extend into the first accommodating groove **12110** and improving the assembly efficiency. Moreover, the first accommodating groove **12110** in this type facilitates processing and thus improves production efficiency.

[0233] Furthermore, the first accommodating groove **12110** is easy to be processed to have a relatively large volume, so as to accommodate more conductive parts **22**. Meanwhile, since the first accommodating groove **12110** is open toward the active substance-coated part **21**, the first accommodating groove **12110** can also be used as a buffering and temporary storage structure for an electrolytic solution, such that a larger amount electrolytic solution can be accommodated in the housing **11**; since the electrolytic solution will be consumed during the charging and discharging processes of the battery cell **10**, the service life of the battery cell **10** can be prolonged when there is a larger amount of electrolytic solution. Also, since the first accommodating groove **12110** is open toward the active substance-coated part **21**, the first accommodating groove **12110** can also be

used as an accommodating and buffering structure for gas generated inside the battery cell assembly **2**, so as to reduce the expansion of the battery cell **10**, thereby improving the reliability and stability of the battery cell **10**.

[0234] In addition, since the first accommodating groove **12110** is located on the inner side of the first post terminal **12**, external foreign substances and impurities are not easy to enter the first accommodating groove **12110**, thereby reducing the influence of external foreign substances and impurities on the battery cell assembly **2**, improving the stability and reliability of the battery cell assembly **2**, and further improving the stability and reliability of the battery cell **10** and the battery **100**.

[0235] Secondly, by providing the first welding part **71** between the post terminal body **1201** and the conductive part **22** on the first end wall **12111**, in one aspect, the first welding part **71** can be further far away from the active substance-coated part **21** when in the first accommodating groove **12110**, thereby further reducing the influence of the high temperature generated when the post terminal body **1201** and the conductive part **22** are welded to form the first welding part **71** on the active substance-coated part **21**; in another aspect, not only the first accommodating groove **12110** has the function of accommodating at least a part of the conductive part **22**, but also the wall of the first accommodating groove **12110** has the function of realizing an electrical connection to the conductive part **22**, such that the structure of the first post terminal **12** can be simplified, thereby facilitating the processing of the first post terminal **12**, and the structure of the conductive part **22** can also be simplified, thereby reducing the redundancy of the conductive part **22** and lowering the cost of the conductive part **22**. Furthermore, by utilizing the welding of the first end wall **12111** to the conductive part **22**, the welding region formed by the first welding part **71** can be set relatively large, which can not only reduce the difficulty of welding, but also improve the reliability and stability of welding, thereby improving the performance of the battery cell **10**.

[0236] In addition, since the first welding part **71** is located in the first accommodating groove **12110**, not only can the first welding part **71** be prevented from protruding outside the first post terminal **12** and occupying the space outside the first post terminal **12**, but also the first welding part **71** can be protected by the first cover plate **13**, thereby improving the welding reliability and stability of the conductive part **22** and the first post terminal **12**.

[0237] In addition, in the embodiments of the present application, the first end wall **12111** is configured as a closed structure without any perforations, such that the first accommodating groove **12110** is isolated from the space outside the housing **11**, avoiding the problem of leakage of the electrolytic solution in the housing **11** from the first accommodating groove **12110**.

[0238] Referring to FIGS. **8** and **9**, in some optional embodiments, a part of the conductive part **22** matches a part of the first end wall **12111** in shape and is provided in a fitting manner to achieve an electrical connection, such that the first welding part **71** between the conductive part **22** and the first end wall **12111** can extend in the length or width direction of the first end wall **12111**. For example, when the first end wall **12111** is a plane, a part of the conductive part **22** may also be a plane and fitted to the first end wall **12111**, and the fitted position is welded. As such, the welding area can be increased, thereby improving the reliability and stability of welding.

[0239] It is worth noting that the shape of the first end wall **12111** is not limited. For example, the first end wall may be in a flat-plate shape, an arc-plate shape or the like. When the first end wall **12111** is of a flat plate structure, the first end wall **12111** is provided at an included angle to an axial direction R of the first post terminal **12**. For example, the first end wall may be of a flat plate structure perpendicular to the axial direction R of the first post terminal **12**, or an inclined plate structure that is not perpendicular to the axial direction R of the first post terminal **12**, but the inclination direction is not limited.

[0240] Certainly, in other embodiments of the present application, the first welding part **71** between the conductive part **22** and the first end wall **12111** may not extend in a length or width direction of the first end wall **12111**, and for example, may also be a plurality of discretely arranged welding

spots. For example, the conductive part **22** has a plurality of portions that are spaced from each other and separately welded to the first end wall **12111**, which will not be described in detail herein.

[0241] In some embodiments, referring to FIG. **10**, the first end wall **12111** is provided with a first recess **12112**, and at least a part of the first welding part **71** is located in the first recess **12112**. It can be understood that a sinking direction of the first recess **12112** is a direction away from the active substance-coated part **21**. Illustratively, at least a part of the conductive part **22** may be provided in the first groove **12112** and connected to a portion of the first end wall **12111** used for defining the first groove **12112**.

[0242] In the above technical solution, in one aspect, the first recess **12112** can be used to pre-position and limit the first welding part **71**, which is not only conducive to accurately locating the position for welding and improving the production efficiency, but also conducive to improving the stability and reliability of the conductive part **22** and ensuring the stability and reliability of the battery cell **10** in the charging and discharging processes; in another aspect, by providing the first recess **12112** on the first end wall **12111**, the wall thickness of a part of the first end wall **12111** can be locally reduced, which is not only conducive to welding, but also conducive to reducing the weight of the first post terminal **12** and improving the gravimetric energy density of the battery cell **10**.

[0243] In some optional embodiments, a part of the conductive part **22** matches the first side wall **12113** in shape and is provided in a fitting manner. For example, when the first side wall **12113** is a curved surface, a part of the conductive part **22** may also be a curved surface and fitted to the first side wall **12113**, and the fitted position is welded, such that the first welding part **71** between the conductive part **22** and the first side wall **12113** extends along the first side wall **12113**. As such, the welding area can be increased, and thus the reliability and stability of welding are improved.

[0244] Certainly, the present application is not limited to this. In other embodiments of the present application, the first welding part **71** between the conductive part **22** and the first side wall **12113** may not extend along the first side wall **12113**, and for example, may also be a plurality of discretely arranged welding spots. For example, the conductive part **22** has a plurality of portions that are spaced from each other and separately welded to the first side wall **12113**, which will not be described in detail herein.

[0245] It should be noted that the number of first side walls **12113** is not limited and may be determined according to the shape of the first accommodating groove **12110**, as long as one end of each first side wall **12113** distal to the opening of the first accommodating groove **12110** is connected to the first end wall **12111**. Illustratively, when the cross-sectional shape of the first accommodating groove **12110** is circular or elliptical, the first end wall **12111** is circular or elliptical. The number of the first side wall **12113** is one, and the first side wall is annular and provided around the circumferential edge of the first end wall **12111**. Further illustratively, when the cross-sectional shape of the first accommodating groove **12110** is rectangular or track-shaped, the first end wall **12111** is rectangular or track-shaped. The number of the first side walls **12113** is four, and the first side walls are separately connected to four sides of the first end wall **12111**.

[0246] It should be further noted that the first accommodating groove **12110** is not limited to the form defined by the first end wall **12111** and the first side wall **12113**. For example, in some embodiments, the first end wall **12111** may not exist. In this case, one end of each first side wall **12113** distal to the opening of the first accommodating groove **12110** converges together, such that the first accommodating groove **12110** is defined only by a plurality of first side walls **12113**. In this case, the conductive part **22** may be electrically connected to the first side wall **12113** to ensure normal charging and discharging processes of the battery cell **10**.

[0247] In addition, it is worth noting that in other embodiments of the present application, the first welding part **71** between the conductive part **22** and the first post terminal **12** may not be located in the first accommodating groove **12110**. For example, the first welding part **71** between the conductive part **22** and the first post terminal **12** may also be located on a post terminal inner end

surface **122**. At this time, a part of the conductive part **22** is accommodated in the first accommodating groove **12110**, which can also save space to a certain extent, thereby improving the energy density of the battery cell **10**.

[0248] Referring to FIGS. **9** and **10**, in some embodiments, the first post terminal **12** is provided with a first groove **126**, a surface of the first post terminal **12** on a side distal to the active substance-coated part **21** is a post terminal outer end surface **123**, an opening of the first groove **126** is formed on the post terminal outer end surface **123**, and the first cover plate **13** covers the opening of the first groove **126**.

[0249] It can be understood that the first groove **126** is a groove body, and the groove body is a groove-shaped structure having a certain depth. Furthermore, when the first post terminal **12** is provided on an upper end wall of the housing **11** and the post terminal outer end surface **123** is an upper surface of the first post terminal **12**, the first groove **126** is formed as a groove with an opening open upward and a wall recessed downward (that is, recessed toward a square proximal to the battery cell assembly **2**). For another example, when the first post terminal **12** is provided on a lower end wall of the housing **11** and the post terminal outer end surface **123** is a lower surface of the first post terminal **12**, the first groove **126** is formed as a groove with an opening downward and a wall recessed upward (that is, recessed toward a square proximal to the battery cell assembly **2**).

[0250] In the above technical solution, in one aspect, since the first post terminal **12** is provided with the first groove **126**, the weight of the first post terminal **12** can be further reduced, so as to improve the gravimetric energy density of the battery cell **10** and the battery **100**; in another aspect, the first groove **126** is located on an outer side of the first post terminal **12**, that is, the first groove is open to a side of the first post terminal **12** away from the interior of the housing **11**, and the first groove **126** can be used to accommodate or mount structural components of the battery **100** that electrically connect various battery cells **10**, so as to make full use of the space in the first post terminal **12**, thereby improving the space utilization and volumetric energy density of the battery **100**; by providing the first groove **126** and enabling the first cover plate **13** to cover the opening of the first groove **126**, the welding of the first cover plate **13** is facilitated, thereby improving the assembly efficiency.

[0251] In addition, since the first post terminal **12** is provided with both the first accommodating groove **12110** and the first groove **126**, the first groove **126** is located on a side of the first accommodating groove **12110** distal to the active substance-coated part **21**, and the first groove **126** is open in a direction away from the first accommodating groove **12110**, it is conducive to laser welding the conductive part **22** to the first end wall **12111** through the first groove **126** from the outside of the first post terminal **12**, that is, a side of the first post terminal **12** distal to the active substance-coated part **21**, so as to facilitate the electrical connection between the conductive part **22** and the first post terminal **12** through external welding. That is, by the above structural arrangement, external welding of the first post terminal **12** to the conductive part **22** through the first groove **126** can be facilitated, which facilitates processing and manufacture of the battery cell **10** and can save processing and manufacturing costs.

[0252] Further, in order to conveniently and effectively weld the conductive part **22** to the wall of the first accommodating groove **12110** through the first groove **126**, and improve the welding reliability of the conductive part **22** to the wall of the first accommodating groove **12110**, in the embodiments of the present application, a part between the first groove **126** and the first accommodating groove **12110** can be laser welded to the conductive part **22**, that is, a spacer part **127** shown in FIG. **10** can be laser welded to the conductive part **22** to achieve an electrical connection between the battery cell assembly **2** and the first post terminal **12**. The spacer part **127** of the first post terminal **12** located between the first groove **126** and the first accommodating groove **12110** is thin. The spacer part **127** isolates the first groove **126** from the first accommodating groove **12110**. A wall surface of the spacer part **127** on a side proximal to the active substance-coated part **21** can be used as the first end wall **12111**. When the conductive part

22 needs to be welded to the first end wall **12111**, since the spacer part **127** is thin, the welding of the conductive part **22** to the first end wall **12111** can be achieved through the first groove **126**, thereby improving the convenience and reliability of welding.

[0253] In some embodiments, the first accommodating groove **12110** can be configured as a shape in which the length of the cross-section is greater than the width, such as a rectangle, an ellipse, and a track shape. The first welding part **71** formed by welding the conductive part **22** to the first post terminal **12** may be a long strip-shaped weld mark parallel to the length direction of the first accommodating groove **12110**, so as to improve the welding reliability and increase the current passage performance. Illustratively, when the conductive part **22** is welded to the first end wall **12111** to form a first welding part **71** as a long strip-shaped weld mark, the width of the weld mark can be greater than or equal to 6 mm, and the distance between the weld mark and the first side wall **12113** can be greater than or equal to 1 mm, so as to ensure the current passage capacity of the battery cell **10** while ensuring the convenience and reliability of welding.

[0254] Referring to FIG. **9**, by providing a first cover plate **13** that covers the first groove **126**, the first post terminal **12** can be indirectly electrically connected to the busbar component **30** through the first cover plate **13**, and the electrical connection between the first cover plate **13** and the busbar component **30** can be more convenient and the electrical connection area can be larger by adjusting the position and structure of the first cover plate **13**. Therefore, by providing the first cover plate **13**, the electrical connection between adjacent battery cells **10** in the battery **100** can be facilitated, and since the position where the battery cells **10** are electrically connected to each other is at the first cover plate **13**, the first welding part **71** between the conductive part **22** and the first post terminal **12** can be separated by the first groove **126**, and there is less interference between the two, which can further improve the stability and reliability of the battery cells **10**.

[0255] It should be noted that, the specific structure of the battery cell assembly **2** in the embodiments of the present application is not limited. For example, the battery cell assembly may include but is not limited to the following two embodiments.

[0256] In some embodiments, referring to FIGS. **9-11**, the active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** electrically connected to the current collector **211**, the tab part **221** includes a plurality of tab plates **2211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge (that is, get together in a direction towards each other) to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, the first gathering part **2212** connects the second gathering part **2213** and the active substance-coated part **21**, at least a part of the second gathering part **2213** is accommodated in the first accommodating groove **12110**, and the second gathering part **2213** is connected to the first end wall **12111** through the first welding part **71**.

[0257] In the above technical solution, the plurality of tab plates **2211** only converge (that is, get together in a direction towards each other) and gather but are not connected when forming the first gathering part **2212**, while the plurality of tab plates **2211** not only converge and gather but are also connected into an integrated structure when forming the second gathering part **2213**. For example, the plurality of tab plates **2211** may be connected into an integrated plate structure by welding (such as ultrasonic welding) to form the second gathering part **2213**, but the present application is not limited thereto. For example, the plurality of tab plates **2211** may also converge and be connected to form the second gathering part **2213** by conductive adhesive bonding, etc., which will not be described in detail herein.

[0258] It should be noted that in the embodiments of the present application, the tab plates **2211** are divided into positive electrode tab plates **2211** and negative electrode tab plates **2211**. The positive electrode tab plates **2211** that need to gather together are stacked together and ultrasonically pre-welded to form a second gathering part **2213** of the positive electrode, which can reduce the gap

between layers and enable the plurality of fluffy positive electrode tab plates **2211** to form a plate structure of a certain rigidity. Similarly, the negative electrode tab plates **2211** that need to gather together are stacked together and ultrasonically pre-welded to form a second gathering part **2213** of the negative electrode, which can reduce the gap between layers and enable the plurality of fluffy negative electrode tab plates **2211** to form a plate structure of a certain rigidity.

[0259] In the above technical solution, "parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, and parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**" is intended to illustrate that: in the extension direction of the tab plates **2211**, the first gathering part **2212** and the second gathering part **2213** are sequentially provided in a direction away from the current collector **211**, and the specific positions of the first gathering part **2212** and the second gathering part **2213** are not limited, that is, it is not required how close the first gathering part **2212** is to the current collector **211**, or how far the second gathering part **2213** is from the current collector **211**. In some optional examples, the current collector **211** and the tab plates **2211** may be an integrated member, such as an integrally formed aluminum foil for the positive electrode plates, and an integrally formed copper foil for the negative electrode plates.

[0260] In the above technical solution, since the tab part **221** includes the second gathering part **2213** formed by converging and connecting the plurality of tab plates **2211**, at least a part of the second gathering part **2213** is accommodated in the first accommodating groove **12110**, which facilitates the connection between the conductive part **22** and the first post terminal **12**, and can make full use of the space of the first post terminal **12**, thereby improving the volumetric energy density of the battery cell **10**.

[0261] Referring to FIGS. **9-11**, in a first embodiment, at least a part of the second gathering part **2213** is accommodated in the first accommodating groove **12110**, such that the space in the first post terminal **12** can be more fully utilized, and the space occupied by the tab part **221** in the housing **11** can be further reduced, so as to accommodate an active substance-coated part **21** of a larger size, thereby improving the volumetric energy density of the battery cell **10**; moreover, the redundancy of the tab part **221** in the housing **11** can be better reduced, thereby further reducing the probability of short circuit between the tab part **221** and the active substance-coated part **21**.

[0262] In this embodiment, the second gathering part **2213** is connected to the first end wall **12111** through the first welding part **71**. For example, referring to FIG. **9**, when the second gathering part **2213** is welded to the first end wall **12111** through the first welding part **71**, such as when the second gathering part **2213** is welded (for example, laser welded) to the first end wall **12111**, the composition of the battery cell assembly **2** can be simplified, thereby reducing the number of components, simplifying the assembly process, and improving the assembly efficiency. The first welding part **71** between the second gathering part **2213** and the first end wall **12111** can extend in the length direction or the width direction of the first end wall **12111**. Furthermore, the first end wall **12111** is provided with a first recess **12112**, the first welding part **71** between the second gathering part **2213** and the first end wall **12111** can also be located in the first recess **12112**, and the like. The corresponding technical effects can refer to the introduction of the above embodiments and will not be described in detail herein.

[0263] Referring to FIG. **10**, in some embodiments, the active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** and an adapting piece **222**, the tab part **221** includes a plurality of tab plates **2211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, the first gathering part **2212** connects the second gathering part **2213** and the active substance-coated part **21**, the adapting piece **222** is connected to the second gathering part **2213**, at least a part of the adapting piece **222** is accommodated in the first accommodating groove **12110**, and the adapting

piece **222** is connected to the first end wall **12111** through the first welding part **71**.
[0264] In the above technical solution, the active substance-coated part **21** can be electrically connected to the first post terminal **12** through the first gathering part **2212**, the second gathering part **2213**, and the adapting piece **222** in sequence. The electrical connection position of the conductive part **22** and the first post terminal **12** is located on the adapting piece **222**. For example, the electrical connection can be achieved by welding (for example, laser welding) the adapting piece **222** to the first post terminal **12**. In addition, the adapting piece **222** and the tab plate **2211** are two separate components and are connected by welding (such as ultrasonic welding) or the like.
[0265] In the above technical solution, in one aspect, by accommodating at least a part of the adapting piece **222** in the first accommodating groove **12110**, the space in the first post terminal **12** can be more fully utilized, and the space occupied by the conductive part **22** in the housing **11** can be further reduced, so as to improve the volumetric energy density of the battery cell **10**. In another aspect, by using the adapting piece **222** and the first welding part **71** to achieve an indirect electrical connection between the second gathering part **2213** and the first post terminal **12**, the adapting piece **222** can be welded to the first post terminal **12** at a part avoiding the second gathering part **2213**, such that the welding between the adapting piece **222** and the first post terminal **12** is firm, the risk of welding cracking is low, and the reliability and stability of the battery cell **10** can be further improved; meanwhile, by electrically connecting the first post terminal **12** and the tab plates **2211** through the adapting piece **222**, the configuration of the tab plates **2211** can also be simplified.
[0266] The connection mode and position of the first welding part **71** between the adapting piece **222** and the first post terminal **12** are not limited. For example, the first welding part **71** between the adapting piece **222** and the first post terminal **12** can be located on the first end wall **12111** and/or the first side wall **12113**. Further, the first welding part **71** between the adapting piece **222** and the first end wall **12111** can extend in the length direction or the width direction of the first end wall **12111**. Furthermore, the first end wall **12111** is provided with a first recess **12112**, the first welding part **71** between the adapting piece **222** and the first end wall **12111** can be located in the first recess **12112**, and the like. The corresponding technical effects can refer to the introduction of the above embodiments and will not be described in detail herein. When the first welding part **71** between the adapting piece **222** and the first post terminal **12** is located on the first end wall **12111** and/or the first side wall **12113**, since at least a part of the adapting piece **222** is accommodated in the first accommodating groove **12110**, the structure of the adapting piece **222** can be simplified, thereby reducing the redundancy and lowering the costs.
[0267] Referring to FIGS. **9**-**11**, in some embodiments, at least a part of the first gathering part **2212** is accommodated in the first accommodating groove **12110**. In the above technical solution, at least a part of the first gathering part **2212** of the tab plate **221** is accommodated in the first accommodating groove **12110**, such that the space in the first post terminal **12** can be more fully utilized, and the space occupied by the tab part **221** in the housing **11** can be further reduced, so as to accommodate an active substance-coated part **21** of a larger size, thereby improving the volumetric energy density of the battery cell **10**; moreover, the redundancy of the tab part **221** in the housing **11** can be better reduced, thereby further reducing the probability of short circuit between the tab part **221** and the active substance-coated part **21**.
[0268] Referring to FIGS. **10**-**11**, in a second embodiment, the active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** and an adapting piece **222**, the tab part **221** includes a plurality of tab plates **2211** electrically connected to the current collector **211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, and the adapting piece **222** is electrically connected to the second gathering part **2213**. When the accommodating part **121** is

provided with the first accommodating groove **12110**, at least a part of the adapting piece **222** may be accommodated in the first accommodating groove **12110** and electrically connected to the first post terminal **12**.

[0269] In the above technical solution, compared with the solution including the adapting piece **222** in the first embodiment, in the second embodiment, at least a part of the adapting piece **222** is accommodated in the first accommodating groove **12110**, but the relative positions of the tab part **221** and the first accommodating groove **12110** are not limited, that is, at least a part of the tab part **221** may be accommodated in the first accommodating groove **12110**, and the tab part **221** may also be completely located outside the first accommodating groove **12110**, thereby meeting different structural design requirements.

[0270] In the above technical solution, by accommodating at least a part of the adapting piece **222** in the first accommodating groove **12110**, the adapting piece **222** can occupy the space in the first post terminal **12**, such that the space occupied by the adapting piece **222** in the housing **11** can be reduced, so as to accommodate an active substance-coated part **21** of a larger size, thereby improving the volumetric energy density of the battery cell **10**; moreover, the probability of short circuit between the adapting piece **222** and the active substance-coated part **21** can be reduced, and the risk of short circuit of the battery cell assembly **2** can be reduced, thereby improving the stability and reliability of the battery cell **10**. In addition, by accommodating at least a part of the conductive part **22** in the accommodating part **121**, it is also conducive to stabilizing and limiting the conductive part **22**, so as to improve the stability of the conductive part **22**, thereby facilitating welding of the conductive part **22** with the first post terminal **12** to improve the assembly efficiency.

[0271] In addition, by using the adapting piece **222** to achieve an indirect electrical connection between the second gathering part **2213** and the first post terminal **12**, the adapting piece **222** can be welded to the first post terminal **12** at a part avoiding the second gathering part **2213**, such that the welding between the adapting piece **222** and the first post terminal **12** is secure, the risk of welding cracking is low, and the reliability and stability of the battery cell **10** can be further improved. Meanwhile, by electrically connecting the first post terminal **12** and the tab plates **2211** through the adapting piece **222**, the configuration of the tab plates **2211** can also be simplified.

[0272] For example, in some optional embodiments, for example, Embodiment I above or the third embodiment below, when the second gathering part **2213** is directly electrically connected to the first post terminal **12**, the conductive part **22** may consist only of the positive electrode tab and the negative electrode tab in each electrode assembly **2***a*. For example, in other embodiments, for example, in the first or second embodiment above or a third or fourth embodiment below, when the second gathering part **2213** is electrically connected to the first post terminal **12** indirectly through the adapting piece **222**, the conductive part **22** may be composed simultaneously of the positive electrode tab and the negative electrode tab in each electrode assembly **2***a* and each adapting piece **222**.

[0273] In some embodiments, when the battery cell assembly **2** includes two electrode assemblies **2***a*, the tab plates **2211** of the two electrode assemblies **2***a* may be gathered together, and the gathering part is located at the center position between the two electrode assemblies **2***a* to form a symmetrical gathering form (for example, as shown in FIGS. **11** and **12** (*a*)). Alternatively, in other embodiments, when the tab plates **2211** of the two electrode assemblies **2***a* are gathered together, the gathering position may also be closer to one of the electrode assemblies **2***a* to form an asymmetrical gathering form (for example, as shown in FIGS. **12** (*b*) and **12** (*c*)). In addition, the electrode assembly **2***a* may be in a full-tab form (for example, as shown in FIG. **12** (*a*)) or a half-tab form (for example, as shown in FIGS. **11**, **12** (*b*), and **12** (*c*)).

[0274] Certainly, the present application is not limited thereto, and the tab plates **2211** of the same polarity of the two electrode assemblies **2***a* may not be gathered together. For example, the tab plates **2211** of each electrode assembly **2***a* are gathered individually according to the positive and

negative electrodes, that is, the positive electrode tabs of one electrode assembly **2***a* are gathered individually, and the positive electrode tabs of another electrode assembly **2***a* are also gathered individually, which will not be described in detail herein.

[0275] It should be noted that the accommodating part **121** in the embodiments of the present application is not limited to having the form of the first accommodating groove **12110**. For example, other optional embodiments will be given later.

[0276] Referring to FIG. **8**, in some embodiments, the housing **11** is provided with a mounting hole **113**, and the first post terminal **12** is mounted in the mounting hole **113**; in an axial direction of the first post terminal **12**, a depth H1 of the first accommodating groove **12110** is greater than or equal to a minimum distance H2 from the post terminal inner end surface **122** to the mounting hole **113**.

[0277] It should be noted that the specific shape of the first accommodating groove **12110** is not limited, and may be a regular shape or an irregular shape, for example, a columnar groove of constant cross-section with a rectangular, elliptical, or track-shaped cross-section, a trapezoidal groove with a rectangular cross-section and a gradually changing cross-sectional size, a hemispherical groove with a circular cross-section and a gradually changing cross-sectional size, a semi-ellipsoidal groove with an elliptical cross-section and a gradually changing cross-sectional size, or the like. Therefore, the depth H1 of the first accommodating groove **12110** refers to: the maximum depth of the first accommodating groove **12110** in the axial direction R of the first post terminal **12**.

[0278] Since in the axial direction R of the first post terminal **12**, the depth H1 of the first accommodating groove **12110** is greater than or equal to the minimum distance H2 from the post terminal inner end surface **122** to the mounting hole **113**, a volume of the first post terminal **12** can be fully utilized, such that the first accommodating groove **12110** has a larger depth, which is conducive to accommodating more conductive parts **22**, and then can reduce the space occupied by the conductive parts **22** in the housing **11** to a greater extent, further improve the energy density of the battery cell **10**, and further reduce the redundancy of the conductive part **22** in the housing **11**. Meanwhile, since the first accommodating groove **12110** has a larger depth, gases produced by the battery cell assembly **2** can also be accommodated, which ensures the reliability and stability of the battery cell **10**, and can also accommodate a larger amount of electrolytic solution to ensure the service life of the battery cell **10**.

[0279] It should be noted that the volume of the first accommodating groove **12110** is not limited. For example, in some specific examples, the volume of the first accommodating groove **12110** that can be used for accommodating the conductive part **22** (referred to as a first volume V1) may be greater than or equal to 298 mm.sup.3, such that the first accommodating groove **12110** may have sufficient space to accommodate the conductive part **22** and facilitate welding of the conductive part **22** to the first post terminal **12**. However, when the first volume V1 of the first accommodating groove **12110** is less than 298 mm.sup.3, the accommodating capacity of the first accommodating groove **12110** for the conductive part **22** is relatively weakened, and the welding difficulty of the conductive part **22** with the first post terminal **12** is increased.

[0280] It is worth noting that the first volume V1 of the first accommodating groove **12110** is: the difference between a total volume V2 of the first accommodating groove **12110** and a volume of other components required to be accommodated in the first accommodating groove **12110** except the conductive part **22** (recorded as a second volume V3), that is, V1=V2-V3. It can be understood that when the first accommodating groove **12110** does not need to accommodate other components except the conductive part **22**, the second volume V3 may be 0 mm.sup.3. For example, the first volume V1 of the first accommodating groove **12110** may be 300 mm.sup.3-1500 mm.sup.3, for example, 300 mm.sup.3, 400 mm.sup.3, 500 mm.sup.3, 600 mm.sup.3, 700 mm.sup.3, 800 mm.sup.3, 1000 mm.sup.3, 1200 mm.sup.3, 1400 mm.sup.3, 1500 mm.sup.3, or the like.

[0281] Optionally, referring to FIG. **8**, the first accommodating groove **12110** can be provided corresponding to the position of the mounting hole **113**, or in other words, on a projection plane

perpendicular to an axial direction R of the first post terminal **12**, an orthographic projection of the first accommodating groove **12110** is located within the range of an orthographic projection of the mounting hole **113**, such that the first accommodating groove **12110** can have a relatively great depth to accommodate more conductive part **22**, thereby reducing the space occupied by the conductive part **22** in the housing **11** to a greater extent.

[0282] In some embodiments, referring to FIG. **13**, the post terminal body **1201** is provided with a second accommodating groove **12120**, a surface of the post terminal body **1201** on a side distal to the active substance-coated part **21** is a post terminal outer end surface **123**, an opening of the second accommodating groove **12120** is formed on the post terminal outer end surface **123**, the second accommodating groove **12120** is provided with a second end wall **12121** proximal to the active substance-coated part **21**, the first welding part **71** is provided on the second end wall **12121**, and the first cover plate **13** is fitted to the post terminal body **1201** and covers the opening of the second accommodating groove **12120**.

[0283] It can be understood that the second accommodating groove **12120** is a groove body, and the groove body is a groove-shaped structure of a certain depth. For example, when the first post terminal **12** is provided on the upper end wall of the housing **11** and the post terminal outer end surface **123** is the upper surface of the first post terminal **12**, the second accommodating groove **12120** is formed as an accommodating groove with an opening open upward and a groove wall recessed downward. For another example, when the first post terminal **12** is provided on the lower end wall of the housing **11** and the post terminal outer end surface **123** is the lower surface of the first post terminal **12**, the second accommodating groove **12120** is formed as an accommodating groove with an opening open downward and a groove wall recessed upward.

[0284] In the above technical solution, referring to FIG. **13**, in one aspect, by providing the second accommodating groove **12120** on the first post terminal **12**, the weight of the first post terminal **12** can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell **10** and the battery **100**; in another aspect, since the opening of the second accommodating groove **12120** is formed on the post terminal outer end surface **123**, and the post terminal outer end surface **123** is a surface of the first post terminal **12** on a side distal to the active substance-coated part **21**, the second accommodating groove **12120** can be open in a direction away from the active substance-coated part **21**. In this way, when at least a part of the conductive part **22** is accommodated in the second accommodating groove **12120**, the accommodation and arrangement of the conductive part **22** can be easily realized through the opening of the second accommodating groove **12120**, the electrical connection operation between the conductive part **22** and the first post terminal **12** can be easily realized through the opening of the second accommodating groove **12120**, and the like, thereby reducing the production difficulty of the battery cell **10** and improving the production efficiency of the battery cell **10**.

[0285] The first welding part **71** is provided on the second end wall **12121**, that is, not only the second accommodating groove **12120** has the function of accommodating at least a part of the conductive part **22**, but also the wall of the second accommodating groove **12120** has the function of welding to the conductive part **22**, such that the structure of the first post terminal **12** can be simplified, thereby facilitating the processing of the first post terminal **12**. Furthermore, the opening direction of the opening of the second accommodating groove **12120** enables the welding operation between the conductive part **22** and the wall of the second accommodating groove **12120** to be easily performed through the opening of the second accommodating groove **12120**, such that the difficulty of welding can be reduced. Furthermore, by utilizing the wall of the second accommodating groove **12120** to achieve a welding connection to the conductive part **22**, the welding region formed by the first welding part **71** between the conductive part **22** and the first post terminal **12** can be relatively large, thereby improving the reliability and stability of the electrical connection, and further improving the performance of the battery cell **10**.

[0286] In addition, since the first welding part **71** between the conductive part **22** and the first post

terminal **12** is located in the second accommodating groove **12120**, not only can the first welding part **71** be prevented from protruding outside the first post terminal **12** and occupying the space outside the first post terminal **12**, but also the first welding part **71** can be protected by the first post terminal **12**, thereby improving the reliability and stability of the electrical connection between the conductive part **22** and the first post terminal **12**.

[0287] Referring to FIGS. **13** and **14**, in some embodiments, a part of the conductive part **22** matches a part of the second end wall **12121** in shape and is provided in a fitting manner to achieve an electrical connection, such that the first welding part **71** between the conductive part **22** and the second end wall **12121** can extend in the length or width direction of the second end wall **12121**. For example, when the second end wall **12121** is a plane, a part of the conductive part **22** may also be a plane and fitted to the second end wall **12121**, and the fitted position is welded. As such, the area of the first welding part **71** can be increased, thereby improving the reliability and stability of welding.

[0288] It is worth noting that the shape of the second end wall **12121** is not limited. For example, the second end wall may be of a flat plate structure or an arc plate structure. When the second end wall **12121** is of a flat plate structure, the second end wall **12121** is provided at an included angle to an axial direction R of the first post terminal **12**. For example, the second end wall may be of a flat plate structure perpendicular to the axial direction R of the first post terminal **12**, or an inclined flat plate structure that is not perpendicular to the axial direction R of the first post terminal **12**, but the inclination direction is not limited.

[0289] In the above technical solution, since the conductive part **22** is connected to the post terminal body **1201** through the first welding part **71**, there is welding slag at the first welding part **71**. By providing the first welding part **71** on the second end wall **12121**, the welding slag can be kept away from the active substance-coated part **21**, thereby reducing the amount of welding slag entering the housing **11**. In another aspect, by shielding the first welding part **71** through the first cover plate **13**, the first welding part **71** can be protected. In this way, the welding slag or part of the welding slag falling from the first welding part **71** can be blocked by the first cover plate **13**, thereby further reducing the amount of welding slag entering the housing **11**. By reducing the amount of welding slag entering the housing **11** twice, the risk of short circuit inside the battery cell **10** due to the presence of welding slag can be greatly reduced, thereby improving the reliability of the battery cell **10**.

[0290] In addition, when the battery cell **10** transmits electricity to the outside, the post terminal body **1201** needs to be electrically connected to the busbar component **30**. At this time, the post terminal body **1201** is welded to the busbar component **30**. In this case, since the first cover plate **13** can shield the first welding part **71**, the busbar component **30** can be prevented from contacting the first welding part **71**, or it can be understood that the busbar component **30** and the first welding part **71** can be isolated from each other, which can also reduce the influence of the first welding part **71** on other welding positions on the post terminal body **1201**.

[0291] In some embodiments, referring to FIG. **55**, the conductive part **22** is located on a side of the second end wall **12121** facing the active substance-coated part **21**. In this case, the first welding part **71** is provided on the side of the second end wall **12121** facing the active substance-coated part **21**. At this time, a distance between the first welding part **71** and the surface of the post terminal body **1201** located on an outer side of the housing **11** is relatively long, which can reduce the influence of the high temperature generated when the post terminal body **1201** is welded to the busbar component **30** on the first welding part **71**.

[0292] Referring to FIG. **13**, in some embodiments, the second accommodating groove **12120** is in communication with the interior of the housing **11** through a first perforation **12130**, the conductive part **22** is provided in the first perforation **12130** in a penetrating manner and is at least partially accommodated in the second accommodating groove **12120**, and the conductive part **22** is at least partially provided on a side of the second end wall **12121** away from the active substance-coated

part **21**.

[0293] It can be understood that, since the second accommodating groove **12120** can be in communication with the interior of the housing **11** through the first perforation **12130**, the second accommodating groove **12120** can also be used as a buffering and temporary storage structure for an electrolytic solution, such that a larger amount of electrolytic solution can be accommodated in the housing **11**; since the electrolytic solution will be consumed during the charging and discharging processes of the battery cell **10**, the service life of the battery cell **10** can be prolonged when there is a larger amount of electrolytic solution. Also, since the second accommodating groove **12120** can be in communication with the interior of the housing **11** through the first perforation **12130**, the second accommodating groove **12120** can also be used as an accommodating and buffering structure for gas generated inside the battery cell assembly **2**, so as to reduce the expansion of the battery cell **10**, thereby improving the reliability and stability of the battery cell **10**.

[0294] It is worth noting that when the accommodating part **121** is provided with a second accommodating groove **12120** and the conductive part **22** is provided in the first perforation **12130** in a penetrating manner and is at least partially accommodated in the second accommodating groove **12120**, the welding position of the conductive part **22** and the first post terminal **12** is not limited.

[0295] Illustratively, when the conductive part **22** is provided in the first perforation **12130** in a penetrating manner and is at least partially accommodated in the second accommodating groove **12120**, in some embodiments of the present application, the first welding part **71** between the conductive part **22** and the first post terminal **12** is located on the wall of the first perforation **12130** formed by the first post terminal **12**.

[0296] In the above technical solution, by providing the first welding part **7** between the conductive part **22** and the first post terminal **12** on the wall of the first perforation **12130**, it is convenient to perform the welding operation on the conductive part **22** and the first post terminal **12** through the second accommodating groove **12120**, and when the welding area between the conductive part **22** and the first post terminal **12** is relatively large, the welding of the conductive part **22** to the first post terminal **12** can be utilized to realize the sealing of the first perforation **12130**, so as to save sealing cost, reduce the leakage of the electrolytic solution, and save sealing parts.

[0297] Specifically, the conductive part **22** may be welded to the wall of the first perforation **12130** at a position of the first perforation **12130** connected to the second accommodating groove **12120**, so as to facilitate the operation. In addition, by controlling a weld mark, the first perforation **12130** can be sealed by utilizing the weld mark and the conductive part **22**, so as to alleviate the problem of leakage of the electrolytic solution in the housing **11** from the first perforation **12130**.

[0298] Further illustratively, when the conductive part **22** is provided in the first perforation **12130** in a penetrating manner and is at least partially accommodated in the second accommodating groove **12120**, in some other embodiments of the present application, the first welding part **71** between the conductive part **22** and the first post terminal **12** can also be located on the wall of the second accommodating groove **12120** formed by the first post terminal **12**. As such, the electrical connection operation is facilitated. For example, when the conductive part **22** is welded to the groove wall of the second accommodating groove **12120** formed on the first post terminal **12**, the conductive particles generated by welding can be prevented from entering the housing **11**, which may otherwise cause short circuit and other problems.

[0299] In some embodiments, referring to FIGS. **13** and **14**, the second accommodating groove **12120** is further provided with a second side wall **12123**, the second side wall **12123** is located on a side of the second end wall **12121** distal to the active substance-coated part **21**, and the second side wall **12123** and the second end wall **12121** define, in an enclosing manner, to form the second accommodating groove **12120**; the first perforation **12130** is formed on the second end wall **12121**, the second end wall **12121** is provided with a second recess **12122**, and at least a part of the first

welding part **71** is located in the second recess **12122**.
[0300] In the above technical solution, in one aspect, since the first perforation **12130** is formed on the second end wall **12121**, it is convenient for the conductive part **22** to extend into the second accommodating groove **12120** through the first perforation **12130**, which can simplify the structure of the conductive part **22**, reduce the redundancy of the conductive part **22**, and lower the cost of the conductive part **22**.
[0301] In another aspect, a part of the first welding part **71** located in the second recess **12122** is configured to match the second recess **12122** in shape and is provided in a fitting manner to achieve welding, such that the second recess **12122** can be used to pre-position and limit the first welding part **71** on the conductive part **22**, which is conducive to accurately locating the position for welding, thereby improving the production efficiency and improving the stability and reliability of the welding position, so as to ensure the reliability and stability of the charging and discharging operations of the battery cell **10**.
[0302] Referring to FIGS. **13** and **14**, the second end wall **12121** may be of a flat plate structure, and an included angle θ between the second end wall **12121** and the axial direction R of the first post terminal **12** is equal to 90°, that is, in a direction from the first perforation **12130** to the second side wall **12123**, the second end wall **12121** is equally spaced from the active substance-coated part **21** are equidistant. As such, the welding of the conductive part **22** to the second end wall **12121** can be facilitated.
[0303] For another example, referring to FIG. **15**, the included angle θ between the second end wall **12121** and the axial direction R of the first post terminal **12** is greater than 90°, that is, in the direction from the first perforation **12130** to the second side wall **12123**, the second end wall **12121** extends obliquely toward a direction close to the active substance-coated part **21**. As such, the extension distance of the conductive part **22** along the second end wall **12121** can be increased, so as to improve the reliability of the electrical connection. Illustratively, the included angle θ between the second end wall **12121** and the axial direction R of the first post terminal **12** may be 90°-145°, for example, 100°, 110°, 120°, 130°, 140°, such that in one aspect, the second end wall **12121** can be easy to process and convenient to be electrically connected to the conductive part **22**, and in another aspect, the space in the first post terminal **12** can be more fully utilized to accommodate the conductive part **22**.
[0304] For another example, referring to FIG. **16**, the included angle θ between the second end wall **12121** and the axial direction R of the first post terminal **12** is less than 90°, that is, in the direction from the first perforation **12130** to the second side wall **12123**, the second end wall **12121** extends obliquely in a direction away from the active substance-coated part **21**. As such, the extension distance of the conductive part **22** along the second end wall **12121** can be increased, so as to improve the reliability of the electrical connection. Illustratively, the included angle θ between the second end wall **12121** and the axial direction R of the first post terminal **12** may be 45°-90°, for example, 50°, 60°, 70°, 80°, or the like, such that in one aspect, the second end wall **12121** can be easy to process and convenient to weld to the conductive part **22**, and in another aspect, the space in the first post terminal **12** can be more fully utilized to accommodate the conductive part **22**.
[0305] Certainly, the present application is not limited to this. In other embodiments of the present application, the first welding part **71** between the conductive part **22** and the second end wall **12121** may not extend in the length or width direction of the second end wall **12121**, and may also be a plurality of discretely arranged spots. For example, the conductive part **22** has a plurality of portions that are spaced from each other and separately welded to the second end wall **12121**, which will not be described in detail herein.
[0306] Referring to FIG. **14** again, regardless of the specific value of the included angle θ between the second end wall **12121** and the axial R of the first post terminal **12**, in the embodiments of the present application, when the conductive part **22** is welded to the second end wall **12121**, a second recess **12122** may be provided on the second end wall **12121** as required. The second recess **12122**

is a groove formed by a part of the second end wall **12121** sinking toward an end proximal to the active substance-coated part. The first welding part **71** between the conductive part **22** and the second end wall **12121** is at least partially located in the second recess **12122**.

[0307] In the above technical solution, the part of the conductive part **22** located in the second groove **12122** is configured to match the second groove **12122** in shape and is provided in a fitting manner to achieve welding, such that the second recess **12122** can be used to pre-position and limit the welding position of the conductive part **22**, which is conducive to accurately locating the position for welding, thereby improving the production efficiency and improving the stability and reliability of the electrical connection position, so as to ensure the reliability and stability of the charging and discharging operations of the battery cell **10**.

[0308] It should be noted that in the embodiments of the present application, a part of the conductive part **22** may also be configured to match the second side wall **12123** in shape and provided in a fitting manner. For example, when the second side wall **12123** is a curved surface, the part of the conductive part **22** may also be a curved surface and fitted to the second side wall **12123**, and the fitted position is welded, such that the first welding part **71** between the conductive part **22** and the second side wall **12123** extends along the second side wall **12123**. As such, the area of the first welding part **71** can be increased, thereby improving the reliability and stability of welding.

[0309] It should also be noted that, in other embodiments of the present application, the first welding part **71** between the conductive part **22** and the second side wall **12123** may not extend along the second side wall **12123**, and for example, may be a plurality of discretely arranged points. For example, the conductive part **22** has a plurality of portions that are spaced from each other and separately welded to the second side wall **12123**, which will not be described in detail herein.

[0310] It can be understood that the number of second side walls **12123** is not limited and may be determined according to the shape of the second accommodating groove **12120**, as long as an end of each second side wall **12123** distal to the opening of the second accommodating groove **12120** is connected to the second end wall **12121**. Illustratively, when the cross-sectional shape of the second accommodating groove **12120** is circular or elliptical, the second end wall **12121** is circular or elliptical. The number of the second side wall **12123** is one, and the second side wall is annular and provided around the circumferential edge of the second end wall **12121**. Further illustratively, when the cross-sectional shape of the second accommodating groove **12120** is rectangular or track-shaped, the second end wall **12121** is rectangular or track-shaped. The number of the second side walls **12123** is four, and the second side walls are separately connected to four sides of the second end wall **12121**.

[0311] It should also be noted that the second accommodating groove **12120** is not limited to the form defined by the second end wall **12121** and the second side wall **12123**. For example, in some embodiments, referring to FIG. **17**, an end of the opening of each second side wall **12123** distal to the second accommodating groove **12120** extends to the first perforation **12130**, such that the second accommodating groove **12120** is defined only by a plurality of second side walls **12123**. At this time, the conductive part **22** can be electrically connected to the second side wall **12123**.

[0312] In some embodiments, referring to FIG. **29**, the active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** electrically connected to the current collector **211**, the tab part **221** includes a plurality of tab plates **2211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, the first gathering part **2212** connects the second gathering part **2213** and the active substance-coated part **21**, at least a part of the second gathering part **2213** is accommodated in the second accommodating groove **12120**, and the second gathering part **2213** is connected to

the second end wall **12121** through the first welding part **71**.
[0313] In the above technical solution, since the tab part **221** includes the second gathering part **2213** formed by converging and connecting parts of the plurality tab plates **2211**, at least a part of the second gathering part **2213** can be easily accommodated in the second accommodating groove **12120**, which facilitates the assembly of the conductive part **22** and the first post terminal **12**. Secondly, by accommodating at least a part of the second gathering part **2213** in the second accommodating groove **12120**, the space in the first post terminal **12** can be utilized, so as to reduce the space occupied by the conductive part **22** in the housing **11**, thereby improving the volumetric energy density of the battery cell **10**.
[0314] In some optional examples, referring to FIG. **29**, the position where the first gathering part **2212** is connected to the second gathering part **2213** can be provided corresponding to the first perforation **12130**, that is, on a projection plane perpendicular to an axial direction R of the first post terminal **12**, an orthographic projection of the position where the first gathering part **2212** is connected to the second gathering part **2213** is located within the range of an orthographic projection of the first perforation **12130**, such that the second gathering part **2213** extends into the first perforation **12130** at a relatively short distance and enter the second accommodating groove **12120**, thereby reducing the redundancy and reducing costs.
[0315] It can be understood that the gathering position of the tab plates **2211** may be designed according to the position of the first perforation **12130**, for example, by adopting the symmetrical gathering form or the asymmetrical gathering form described above, such that the position where the first gathering part **2212** is connected to the second gathering part **2213** is provided corresponding to the first perforation **12130**, which will not be described in detail herein. In addition, referring to the above description, when the second gathering part **2213** forms a plate structure by ultrasonic pre-welding, it is convenient for the second gathering part **2213** to pass through the first perforation **12130**.
[0316] In some embodiments, referring to FIG. **30**, the active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** and an adapting piece **222**, the tab part **221** is electrically connected to the current collector **211**, the tab part **221** includes a plurality of tab plates **2211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, the first gathering part **2212** connects the second gathering part **2213** and the active substance-coated part **21**, the adapting piece **222** is connected to the second gathering part **2213**, at least a part of the adapting piece **222** is accommodated in the second accommodating groove **12120**, and the adapting piece **222** is connected to the second end wall **12121** through the first welding part **71**.
[0317] In the above technical solution, by accommodating at least a part of the adapting piece **222** in the second accommodating groove **12120**, the adapting piece **222** can occupy the space in the first post terminal **12**, such that the space occupied by the adapting piece **222** in the housing **11** can be reduced, so as to accommodate a larger active substance-coated part **21**, thereby improving the energy density of the battery cell **10**. Moreover, the probability of short circuit between the adapting piece **222** and the active substance-coated part **21** can be reduced, and the risk of short circuit of the battery cell assembly **2** can be reduced, thereby improving the stability and reliability of the battery cell **10**.
[0318] In addition, by using the adapting piece **222** to achieve an indirect electrical connection between the second gathering part **2213** and the first post terminal **12**, the adapting piece **222** can be welded to the first post terminal **12** at a part avoiding the second gathering part **2213**, such that the welding between the adapting piece **222** and the first post terminal **12** is secure, the risk of welding cracking is low, and the reliability and stability of the battery cell **10** can be further improved. Meanwhile, by electrically connecting the first post terminal **12** and the tab plates **2211**

through the adapting piece **222**, the configuration of the tab plates **2211** can also be simplified.
[0319] In some embodiments, referring to FIG. **30**, at least a part of the first gathering part **2212** is accommodated in the second accommodating groove **12120**.
[0320] In the above technical solution, by accommodating at least a part of the first gathering part **2212** and the adapting piece **222** in the second accommodating groove **12120**, the space in the first post terminal **12** can be more fully utilized, and the space occupied by the conductive part **22** in the housing **11** can be further reduced, so as to further improve the volumetric energy density of the battery cell **10**. Furthermore, by providing the adapting piece **222** of the plate structure, it is convenient for the adapting piece **222** to pass through the first perforation **12130** and extend into the second accommodating groove **12120**.
[0321] Referring to FIG. **29**, in some embodiments, the post terminal body **1201** is provided with a first accommodating part **121**, the first accommodating part **121** is provided with a third accommodating groove **12140**, a surface of the first post terminal **12** on a side facing the active substance-coated part **21** is a post terminal inner end surface **122**, the third accommodating groove **12140** is located on a side of the second accommodating groove **12120** proximal to the active substance-coated part **21**, and an opening of the third accommodating groove **12140** is formed on the post terminal inner end surface **122**; the third accommodating groove **12140** is connected to the second accommodating groove **12120** through the first perforation **12130**, and at least a part of the first gathering part **2212** is accommodated in the third accommodating groove **12140**.
[0322] At this time, a part of the conductive part **22** is located in the third accommodating groove **12140**, and meanwhile, the conductive part **22** is provided in the first perforation **12130** in a penetrating manner, and the rest of the conductive part **22** is located in the second accommodating groove **12120**, such that the space in the first post terminal **12** can be more fully utilized, and the space occupied by the conductive part **22** in the housing **11** can be reduced.
[0323] It is worth noting that when the conductive part **22** is connected to the second end wall **12121** or the second side wall **12123** by laser welding, referring to FIG. **17**, an included angle β between a part of the conductive part **22** used for welding and an axis of the first perforation **12130** can be set to be greater than 5°, so as to reduce the problem of laser entering the housing **11** through the first perforation **12130**, and it is beneficial to the welding operation. In addition, when the included angle β between the part of the conductive part **22** used for welding and the axis of the first perforation **12130** is close to 5°, edge sealing welding may be used, and overlap welding may be used for the rest.
[0324] In some embodiments, referring to FIGS. **27-28**, the housing assembly **1** further includes a second cover plate **14**, and the second cover plate **14** lids the first perforation **12130** and is located outside the conductive part **22** in the second accommodating groove **12120**.
[0325] It is worth noting that when the housing assembly **1** includes the second cover plate **14**, the housing assembly **1** may also include the first cover plate **13**, or may not include the first cover plate **13**. Further, when the housing assembly **1** includes both the second cover plate **14** and the first cover plate **13**, the first cover plate **13** may be in the composite form made of a plurality of materials, or may be in the non-composite form made of the same material.
[0326] In the above technical solution, at least a part of the conductive part **22** is located in the second accommodating groove **12120**, and the second cover plate **14** lids the part of the conductive part **22**. The second cover plate **14** also lids the first perforation **12130**, such that when the electrolytic solution enters the second accommodating groove **12120** from the first perforation **12130**, the problem of the part of the electrolytic solution overflowing from the first post terminal **12** can be alleviated through the second cover plate **14**, thereby improving the reliability of the battery cell **10**.
[0327] For example, as shown in FIGS. **27-28**, when a part of the conductive part **22** is sandwiched between the second cover plate **14** and the second end wall **12121**, the part of the conductive part **22**, the second cover plate **14**, and the second end wall **12121** can be welded together by using laser

welding, so as to improve the reliability of the connection between the first post terminal **12** and the conductive part **22**. Furthermore, since the second cover plate **14** can press the conductive part **22**, the second cover plate **14** may be used to improve the stability of the conductive part **22** accommodated in the second accommodating groove **12120**.

[0328] Referring to FIG. **13** again, in some embodiments, the housing **11** is provided with a mounting hole **113**, and the first post terminal **12** is mounted in the mounting hole **113**; in an axial direction of the first post terminal **12**, a depth H3 of the second accommodating groove **12120** is greater than or equal to a minimum distance H4 from the post terminal outer end surface **123** to the mounting hole **113**.

[0329] It should be noted that the specific shape of the second accommodating groove **12120** is not limited, and may be a regular shape or an irregular shape, for example, a columnar groove of constant cross-section with a rectangular, elliptical, or track-shaped cross-section, a trapezoidal groove with a rectangular cross-section and a gradually changing cross-sectional dimension, a hemispherical groove with a circular cross-section and a gradually changing cross-sectional dimension, a semi-ellipsoidal groove with an elliptical cross-section and a gradually changing cross-sectional dimension, or the like. It is worth noting that the “track-shaped” described herein refers to a shape in which the two short sides of a rectangle are replaced by convex curves, such as the shape shown in FIG. **19** (*b*).

[0330] Therefore, the depth H3 of the second accommodating groove **12120** refers to: the maximum depth of the second accommodating groove **12120** in the axial direction R of the first post terminal **12**. Since in the axial direction R of the first post terminal **12**, the depth H3 of the second accommodating groove **12120** is greater than or equal to the minimum distance H4 from the post terminal outer end surface **123** to the mounting hole **113**, a volume of the first post terminal **12** can be fully utilized, such that the second accommodating groove **12120** has a larger depth, which is conducive to accommodating more conductive parts **22**, and then can reduce the space occupied by the conductive parts **22** in the housing **11** to a greater extent, further improve the energy density of the battery cell **10**, and further reduce the redundancy of the conductive part **22** in the housing **11**. Meanwhile, since the second accommodating groove **12120** has a larger depth, gases produced by the battery cell assembly **2** can also be accommodated, which ensures the reliability and stability of the battery cell **10**, and can also accommodate a larger amount of electrolytic solution to ensure the service life of the battery cell **10**.

[0331] It should be noted that the volume of the second accommodating groove **12120** is not limited. For example, in some specific examples, the volume of the second accommodating groove **12120** that can be used for accommodating the conductive part **22** (referred to as a third volume V4) may be greater than or equal to 298 mm.sup.3, such that the second accommodating groove **12120** may have sufficient space to accommodate the conductive part **22** and facilitate welding of the conductive part **22** to the first post terminal **12**. However, when the third volume V4 of the second accommodating groove **12120** is less than 298 mm.sup.3, the accommodating capacity of the second accommodating groove **12120** for the conductive part **22** is relatively weakened, and the welding difficulty of the conductive part **22** with the first post terminal **12** is increased. For example, the third volume V4 of the second accommodating groove **12120** may be 300 mm.sup.3, 400 mm.sup.3, 500 mm.sup.3, 600 mm.sup.3, 700 mm.sup.3, 800 mm.sup.3, 1000 mm.sup.3, or the like.

[0332] It is worth noting that the third volume V4 of the second accommodating groove **12120** is: the difference between a total volume V5 of the second accommodating groove **12120** and a volume of other components (such as the first cover plate **13** and the second cover plate **14** described herein) required to be accommodated by the second accommodating groove **12120** except the conductive part **22** (referred to as a fourth volume V6), that is, V4=V5-V6. For example, in some specific examples, the total volume V5 of the second accommodating groove **12120** may be 1400 mm.sup.3-1500 mm.sup.3, such that the second accommodating groove **12120** may have

more sufficient space to accommodate the conductive part **22** and other components. For example, the total volume V5 of the second accommodating groove **12120** may be 1420 mm.sup.3, 1440 mm.sup.3, 1460 mm.sup.3, 1480 mm.sup.3, 1490 mm.sup.3, or the like.

[0333] Optionally, referring to FIG. **13**, the second accommodating groove **12120** can be provided corresponding to the position of the mounting hole **113**, or in other words, on a projection plane perpendicular to an axial direction R of the first post terminal **12**, an orthographic projection of the second accommodating groove **12120** is located within the range of an orthographic projection of the mounting hole **113**, such that the second accommodating groove **12120** can have a relatively great depth to accommodate more conductive part **22**, thereby reducing the space occupied by the conductive part **22** in the housing **11** to a greater extent.

[0334] In the embodiments of the present application, the shape of the first perforation **12130**, the number of the first perforation **12130**, and the relative positional relationship between the first perforation **12130** and the second accommodating groove **12120** are not limited.

[0335] Illustratively, with respect to the shape of the first perforation **12130**, referring to FIGS. **18** and **19**, in the embodiments of the present application, the first perforation **12130** may be in a long strip shape to be adapted to a plate-shaped part of the conductive part **22** in shape, thereby facilitating the plate-shaped part of the conductive part **22** to pass through. Meanwhile, when the first perforation **12130** is long strip-shaped, the second accommodating groove **12120** may also be configured as a shape in which the length of the cross-section is greater than the width, such as a rectangle, an ellipse, and a track shape. In this case, the length direction of the first perforation **12130** may be set to be consistent with the length direction of the cross-section of the second accommodating groove **12120**, such that the space can be fully utilized. In addition, the weld mark formed by welding the conductive part **22** to the first post terminal **12** may be a long strip-shaped weld mark parallel to the length direction of the first perforation **12130**, so as to improve the welding reliability and increase the current passage performance. Illustratively, when the conductive part **22** is welded to the second end wall **12121** to form a weld mark as a long strip-shaped weld mark, the width of the weld mark may be greater than or equal to 6 mm, and the distance between the weld mark and the second side wall **12123** may be greater than or equal to 1 mm, so as to ensure the current passage capacity of the battery cell **10** while ensuring the convenience and reliability of welding.

[0336] With regard to the dimension and number of the first perforations **12130**, in the embodiments of the present application, the formation dimension and specific position of the first perforations **12130** on the second accommodating groove **12120** are not limited and may be designed according to the number of the formed first perforations **12130**. For example, the width of the first perforation **12130** may be greater than or equal to 2 mm, which facilitates the conductive part **22** to pass through. For example, when there is only one first perforation **12130** formed on the second accommodating groove **12120**, in some examples, referring to FIGS. **18** and **19**, the first perforation **12130** can be provided in a centered position relative to the second accommodating groove **12120**. In some other examples, referring to FIG. **20**, the first perforation **12130** can also be provided in an offset position relative to the center of the second accommodating groove **12120**. For example, in some embodiments, referring to FIG. **20**, the first perforation **12130** can be formed at the edge of the second end wall **12121** to be provided proximal to the second side wall **12123**, such that the available area of the second end wall **12121** can be increased, thereby increasing the welding area between the conductive part **22** and the second end wall **12121**.

[0337] It can be understood that after passing through the first perforation **12130**, the conductive part **22** will be folded to be fitted to the second end wall **12121**, but the folding direction is not limited. For example, when the first perforation **12130** is provided in a centered position relative to the second accommodating groove **12120**, after passing through the first perforation **12130**, the conductive part **22** can be folded toward any side of the first perforation **12130** (referring to FIG. **18**), such that the size of the second accommodating groove **12120** can be appropriately reduced,

thereby enhancing the compactness and strength of the structure; or, after passing through the first perforation **12130**, the conductive part **22** can also be folded toward opposite sides at the same time (referring to FIG. **21**), so as to reduce the thickness at the welding position and reduce the welding heat input, thereby reducing problems such as particle splashing.

[0338] For example, when a plurality of first perforations **12130** are formed on the second accommodating groove **12120**, the length directions of the plurality of first perforations **12130** are provided in parallel or substantially in parallel to make full use of the space. In this case, the folding direction of the conductive part **22** after passing through the first perforation **12130** may be set according to the relative positional relationship of the plurality of first perforations **12130**. For example, when two first perforations **12130** are formed on the second accommodating groove **12120** and are distal to each other (referring to FIG. **22**), the two conductive parts **22** passing through the two first perforations **12130** may be folded in a direction close to each other; when two first perforations **12130** are formed on the second accommodating groove **12120** and are proximal to each other, the two conductive parts **22** passing through the two first perforations **12130** may be folded in a direction away from each other.

[0339] It can be understood that when a plurality of first perforations **12130** are formed on the second accommodating groove **12120**, the number of first post terminals **12** may be appropriately reduced, so as to reduce costs and processes.

[0340] In addition, in some embodiments, referring to FIGS. **20** and **21**, the first perforation **12130** may be provided in a centered position relative to the active substance-coated part **21**, but the position of the first perforation **12130** relative to the second accommodating groove **12120** is not limited, and may be centered or offset. Since the first perforation **12130** is provided in a centered position relative to the active substance-coated part **21**, the conductive part **22** may be gathered corresponding to the midline position of the active substance-coated part **21**.

[0341] In some embodiments, referring to FIG. **21**, a sealing member **6** may be provided at the first perforation **12130** to alleviate the problem of leakage of the electrolytic solution in the housing **11** from the first perforation **12130**. The material, shape and connection mode at the first perforation **12130** for the sealing member **6** are not limited. Illustratively, the sealing member **6** may be a metal member made of the same material as that of the first post terminal **12** or the conductive part **22**, which may be fitted to the wall surface of the first post terminal **12** at the first perforation **12130** by welding to seal the first perforation **12130**. Further illustratively, the sealing member **6** may be a plastic member, which is in insertion fit to the first perforation **12130** to seal the first perforation **12130**. In the embodiments of the present application, the sealing may be designed according to actual requirements without limitation.

[0342] FIG. **23** is an exploded view of the structure of the battery cell **10** according to some embodiments of the present application; FIG. **24** is a partial cross-sectional schematic diagram of the housing assembly **1** according to some embodiments of the present application; FIG. **25** is an exploded view of the structure of the housing assembly **1** shown in FIG. **24**. Referring to FIGS. **23** and **24**, in some embodiments of the present application, when the accommodating part **121** is provided with the second accommodating groove **12120** according to any one of the above embodiments, optionally, the housing assembly **1** may further include a first cover plate **13**. The first cover plate **13** is fitted to the first post terminal **12** and closes the opening of the second accommodating groove **12120**, and the first cover plate **13** is electrically connected to the first post terminal **12**.

[0343] In the above technical solution, by providing the first cover plate **13** to close the opening of the second accommodating groove **12120**, the electrolytic solution in the housing **11** can be prevented from leaking from the opening of the second accommodating groove **12120**. Moreover, since the first cover plate **13** closes the opening of the second accommodating groove **12120** and is electrically connected to the first post terminal **12**, an indirect electrical connection between the first post terminal **12** and a busbar component can be easily achieved by using the first cover plate

13, and the connection area of the electrical connection can also be increased, thereby helping reduce the resistance of the electrical connection.

[0344] It is worth noting that the fitting manner and fitting position of the first cover plate **13** and the first post terminal **12** are not limited, as long as the first cover plate **13** can close the opening of the second accommodating groove **12120**. For example, in some embodiments, referring to FIG. **22**, the first cover plate **13** may be welded to the first post terminal **12**. During processing, the conductive part **22** may be first passed through the first perforation **12130** and welded to the wall of the second accommodating groove **12120**, and then the first cover plate **13** is welded to the first post terminal **12** to close the opening of the second accommodating groove **12120**.

[0345] Referring to FIG. **31**, in some embodiments, the post terminal body **1201** is provided with a first accommodating part **121**, the first accommodating part **121** is provided with a fourth accommodating groove **12150**, the fourth accommodating groove **12150** is a groove body, the groove body is of a groove-shaped structure having a certain depth, a surface of the post terminal body **1201** on a side distal to the active substance-coated part **21** is a post terminal outer end surface **123**, an opening of the fourth accommodating groove **12150** is formed on the post terminal outer end surface **123**, the fourth accommodating groove **12150** is in communication with the interior of the housing **11** through a second perforation **12160**, the conductive part **22** may not be accommodated in the fourth accommodating groove **12150**, for example, the conductive part **22** is provided in the second perforation **12160** in a penetrating manner, the first welding part **71** is provided on the wall of the second perforation **12160** formed in the first accommodating part **121**, and the first cover plate **13** is fitted to the post terminal body **1201** and covers the second perforation **12160**.

[0346] In the above embodiment, by providing the fourth accommodating groove **12150**, the welding of the conductive part **22** to the wall of the second perforation **12160** can be easily realized. Furthermore, in some cases, the sealing of the second perforation **12160** can be realized by the welding of the conductive part **22** to the first post terminal **12**. For example, the conductive part **22** may be welded to the wall of the second perforation **12160** at a position of the second perforation **12160** connected to the fourth accommodating groove **12150**, so as to facilitate the operation. In addition, by controlling a weld mark, the second perforation **12160** can be sealed by utilizing the weld mark and the conductive part **22**, so as to alleviate the problem of leakage of the electrolytic solution in the housing **11** from the second perforation **12160**.

[0347] It should be noted that the specific shape of the fourth accommodating groove **12150** is not limited, and may be a regular shape or an irregular shape, for example, a columnar groove of constant cross-section with a rectangular, elliptical, or track-shaped cross-section, a trapezoidal groove with a rectangular cross-section and a gradually changing cross-sectional dimension, a hemispherical groove with a circular cross-section and a gradually changing cross-sectional dimension, a semi-ellipsoidal groove with an elliptical cross-section and a gradually changing cross-sectional dimension, or the like.

[0348] In the embodiments of the present application, the shape of the second perforation **12160** may be a long strip shape, so as to match the shape of the plate-shape part of the conductive part **22**, thereby facilitating the plate-shape part of the conductive part **22** to pass through. Meanwhile, when the second perforation **12160** is long strip-shaped, the fourth accommodating groove **12150** may also be configured into a shape in which the length of the cross-section is greater than the width, such as a rectangle, an ellipse, and a track shape. In this case, the length direction of the second perforation **12160** may be set to be consistent with the length direction of the cross-section of the fourth accommodating groove **12150**, such that the space can be fully utilized.

[0349] It should be noted that the first accommodating part **121** of the embodiments of the present application is not limited to the above forms in which at least one accommodating groove must be provided. For example, in some other embodiments of the present application, referring to FIG. **32**, the first accommodating part **121** may be provided with only a third perforation **12170**, a surface of

the first post terminal **12** on a side facing the active substance-coated part **21** is a post terminal inner end surface **122**, a surface of the first post terminal **12** distal to the active substance-coated part **21** is a post terminal outer end surface **123**, the third perforation **12170** is in the form of a through hole and passes through the post terminal inner end surface **122** and the post terminal outer end surface **123**, and at least a part of the conductive part **22** is provided in the third perforation **12170** in a penetrating manner. The electrical connection position of the conductive part **22** and the first post terminal **12** is not limited. For example, the electrical connection position may be located on the wall of the third perforation **12170** formed on the first post terminal **12**, or the conductive part **22** may pass through the third perforation **12170**, such that the electrical connection position is located on the post terminal outer end surface **123** outside the third perforation **12170**. In addition, the shape of the third perforation **12170** is not limited. The third perforation may be a regular-shaped hole of constant cross-section, or a hole of variable cross-section. Furthermore, the cross-sectional shape of the third perforation **12170** is not limited, for example, a long strip shape, such as a rectangle, an ellipse, or a track shape, so as to match the shape of the plate-shape part of the conductive part **22**, thereby facilitating the plate-shaped part of the conductive part **22** to be provided in the third perforation **12170** in a penetrating manner, which will not be described in detail herein.

[0350] In the embodiments of the present application, the first post terminal **12** may be an integrally formed post terminal, or a separately formed composite post terminal. Referring to FIGS. **27-28**, in some embodiments, the post terminal body **1201** includes a first post terminal part **124** and a second post terminal part **125** made of different materials and electrically connected, the second post terminal part **125** is located on a side of the first post terminal part **124** distal to the active substance-coated part **21**, the first accommodating part **121** is provided on the first post terminal part **124** or on the first post terminal part **124** and the second post terminal part **125**, and the first welding part **71** is provided on the first post terminal part **124**.

[0351] In the above technical solution, by configuring the first post terminal **12** as a composite form composed of different materials, the first post terminal part **124** located on the inner side is fitted in a receiving manner and electrically connected to the conductive part **22**, and the second post terminal part **125** located on the outer side is electrically connected to the busbar component **30** and the like, which is conducive to realizing the assembly and electrical connection of the first post terminal **12** to related components, reducing the mutual interference between the welding position of the first post terminal **12** and the conductive part **22**, and the welding position of the first post terminal **12** and the busbar component **30** of the battery **100**, and improving the reliability and stability of the battery cell **10**.

[0352] For example, when the material of the conductive part **22** is different from that of the busbar component **30**, the first post terminal part **124** can be set to have the same material as the conductive part **22**, and the second post terminal part **125** can be set to have the same material as the busbar component **30**, which is conducive to realizing the welding of the second post terminal part **125** to the busbar component **30**, and the welding of the first post terminal part **124** to the conductive part **22**, improving the reliability and stability of the electrical connection between the conductive part **22** and the first post terminal **12**, and the reliability and stability of the electrical connection between the first post terminal **12** and the busbar component **30**.

[0353] Further, when the first post terminal **12** is in the composite form of the above embodiments and is provided with the second accommodating groove **12120** and the first perforation **12130** of any one of the above embodiments, in some embodiments, the housing assembly **1** may also include the second cover plate **14** of any one of the above embodiments. In this case, the second cover plate **14** may be set to be made of the same material as that of the first post terminal part **124**, and the first post terminal part **124** may be electrically connected to the second cover plate **14**, so as to improve the reliability and stability of the electrical connection between the first post terminal part **124** and the second cover plate **14**. For example, the first post terminal part **124** and the second

cover plate **14** may be connected by welding.
[0354] For example, referring to FIGS. **27-28**, when the first post terminal **12** is a negative electrode post terminal, the first post terminal part **124** is made of copper, the second post terminal part **125** is made of aluminum, and the conduit component **30** is an aluminum sheet, the second cover plate **14** can be set to be made of copper, and the first cover plate **13** can be set to be made of aluminum. At this time, the second cover plate **14** and the first post terminal part **124** are made of the same material and can be effectively welded, the second post terminal part **125** and the first cover plate **13** are made of the same material and can be effectively welded, and the first cover plate **13** and the busbar component **30** are made of the same material and can be effectively welded.
[0355] In the embodiments of the present application, when the first accommodating part **121** is provided with a second accommodating groove **12120**, depending on different compositions of the battery cell assembly **2**, the fitting condition between the battery cell assembly **2** and the second accommodating groove **12120** is not limited, and for example, may include, but are not limited to the following third and fourth embodiments.
[0356] In some embodiments, referring to FIGS. **8** and **54**, the first cover plate **13** is provided with a second accommodating part **134**, the second accommodating part **134** is provided with a fifth accommodating groove **1341**, an opening of the fifth accommodating groove **1341** is formed on an end surface of the first cover plate **13** on a side facing the active substance-coated part **12**, and the fifth accommodating groove **1341** is provided with a third end wall **13411** and a third side wall **13412**; the third end wall **13411** is located on a side of the third side wall **13412** distal to the active substance-coated part **21**, and at least a part of the first welding part **71** is accommodated in the fifth accommodating groove **1341**.
[0357] Illustratively, when no accommodating groove is formed on the first post terminal outer end surface **123** of the first post terminal **12**, the first post terminal outer end surface **123** is a plane. At this time, the first welding part **71** protrudes from the first post terminal outer end surface **123**. The first cover plate **13** is provided with a fifth accommodating groove **1341** to accommodate the first welding part **71**, so as to protect the first welding part **71** and facilitate a subsequent connection to the busbar component.
[0358] Certainly, the post terminal body **1201** is provided with a second accommodating groove **12120**. When an opening of the second accommodating groove **12120** is formed on the post terminal outer end surface **123**, the first cover plate **13** can also be provided with a fifth accommodating groove **1341** to be fitted to the second accommodating groove **12120** to accommodate the first welding part **71**, so as to protect the first welding part **71** and facilitate a subsequent connection to the busbar component.
[0359] In the above technical solution, in one aspect, by providing the fifth accommodating groove **1341** on the first cover plate **13**, the weight of the first post terminal **12** can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell **10** and the battery **100**; in another aspect, since the opening of the fifth accommodating groove **1341** is formed on the end surface of the first cover plate **13** on the side facing the active substance-coated part **12**, and the third end wall **13411** is located on the side of the third side wall **13412** distal to the active substance-coated part **21**, the fifth accommodating groove **1341** can be open in a direction away from the active substance-coated part **21**. In this way, when at least a part of the conductive part **22** is accommodated in the fifth accommodating groove **1341**, the accommodation and arrangement of the first welding part **71** can be easily realized through the opening of the fifth accommodating groove **1341**, thereby reducing the production difficulty of the battery cell **10** and improving the production efficiency of the battery cell **10**.
[0360] In some embodiments, the first cover plate **13** is electrically connected to the post terminal body **1201**; or, the first cover plate **13** is provided to be insulated from the post terminal body **1201**. That is, the first cover plate **13** can be electrically connected to the post terminal body **1201**, and at this time, the first cover plate **13** can also participate in the electrical connection to the busbar

component **30**, which can increase the area of the weldable region, thereby facilitating the welding of the first post terminal **12** to the busbar component **30**. The first cover plate **13** may also not be electrically connected to the post terminal body **1201**, that is, the two are insulated with each other. In this case, the first cover plate **13** mainly serves to protect the first welding part **71**.

[0361] In some embodiments, as shown in FIG. **26**, the first cover plate **13** includes a first conductive member **131** and a second conductive member **132** made of different materials, the first conductive member **131** is fitted to and electrically connected to the post terminal body **1201**, and the second conductive member **132** is fitted to and electrically connected to the first conductive member **131**.

[0362] In the above technical solution, the first cover plate **13** is provided in a composite form, and the first conductive member **131** is set to be made of the same material as that of the first post terminal **12**, so as to facilitate the electrical connection between the first conductive member **131** and the first post terminal **12**. For example, the first conductive member **131** can be easy to be reliably and stably connected to the first post terminal **12** through welding. Furthermore, since the second conductive member **132** is made of a different material from that of the first conductive member **131**, the electrical connection between the second conductive member **132** and a busbar component and the like made of a different material from that of the first post terminal **12** is facilitated. For example, the second conductive member **132** can be easy to be reliably and stably connected to a busbar component made of the same material as that of the second conductive member **132** through welding.

[0363] For example, when the first post terminal **12** is a negative electrode post terminal, the first post terminal **12** is a copper column, and when the busbar component is an aluminum sheet, the first conductive member **131** may be set to be made of copper, and the second conductive member **132** may be set to be made of aluminum. In this case, the first post terminal **12** and the first conductive member **131** are made of the same material and can be effectively welded, and the second conductive member **132** and the busbar component are made of the same material and can be effectively welded, thereby effectively achieving an indirect electrical connection between the first post terminal **12** and the busbar component through the first cover plate **13**. Moreover, the welding of the first post terminal **12** to the first conductive member **131** is welding between the copper materials, which has good fluidity and is not prone to cracks, thereby helping improve the sealing effect of the welding position.

[0364] It is worth noting that the fitting manner of the first conductive member **131** and the second conductive member **132** is not limited. In some embodiments, referring to FIGS. **24-26**, the first conductive member **131** is provided with a second groove **1311**, the second conductive member **132** is embedded in the second groove **1311**, an opening of the second groove **1311** is formed on a surface of the first conductive member **131** on a side distal to the active substance-coated part **21**, such that the second conductive member **132** is exposed from the opening of the second groove **1311**. Alternatively, in other embodiments, the connection mode between the first conductive member **131** and the second conductive member **132** may also be a fastening connection, a snap connection, and the like.

[0365] It should be further noted that “exposed” mentioned in the second conductive member **132** being exposed from the opening of the second groove **1311** means that the first conductive member **131** does not block the second conductive member **132** at the opening position of the second groove **1311**, and the second conductive member **132** is not required to protrude from the opening of the second groove **1311**. For example, the second conductive member **132** may be flush with the surface of the first conductive member **131** on a side distal to the second accommodating groove **12120**, or the second conductive member **132** may protrude from the surface of the first conductive member **131** on a side distal to the second accommodating groove **12120**.

[0366] In the above technical solution, in one aspect, by embedding the second conductive member **132** in the first conductive member **131**, the difficulty in assembling the first conductive member

131 and the second conductive member **132** can be reduced, such that the stability and convenience of the fit of the first conductive member **131** and the second conductive member **132** are improved, and the thickness of the first cover plate **13** can be reduced, such that the space occupied by the first cover plate **13** can be reduced, so as to improve the space utilization of the battery cell **10**. In another aspect, since the second conductive member **132** can be exposed from the surface of the first conductive member **131** on the side distal to the second accommodating groove **12120** through the opening of the second groove **1311**, it is conducive to realizing the electrical connection between the second conductive member **132** and the busbar component outside the first post terminal **12**.

[0367] In addition, since the opening of the second groove **1311** is formed on the surface of the first conductive member **131** on a side distal to the second accommodating groove **12120**, it means that the second groove **1311** is open in a direction away from the active substance-coated part **21**, such that the part of the first conductive member **131** configured to define the groove wall of the second groove **1311** is located between the second accommodating groove **12120** and the second conductive member **132**, so as to separate the second accommodating groove **12120** from the second conductive member **132**, thereby preventing the electrolytic solution entering the second groove **1311** from contacting the second conductive member **132** and reducing leakage of the electrolytic solution.

[0368] Certainly, in other embodiments, the first cover plate **13** may not be in a composite form composed of multiple materials. For example, in other embodiments of the present application, referring to FIG. **27**, the first cover plate **13** as a whole can also be set to be in a non-composite form made of the same material, for example, for adapting to the positive electrode post terminal, which will not be described in detail herein.

[0369] Referring to FIGS. **24-26** again, in some embodiments, the first cover plate **13** is also embedded in the opening of the second accommodating groove **12120**. In the above technical solution, by embedding the first cover plate **13** in the second accommodating groove **12120**, the difficulty in assembling the first cover plate **13** and the first post terminal **12** can be reduced, such that the stability of assembly of the first cover plate **13** and the first post terminal **12** and the reliability and convenience of the connection are improved, and the space occupied by the first cover plate **13** outside the first post terminal **12** is reduced. Moreover, since the first cover plate **13** is embedded in the opening of the second accommodating groove **12120**, there is sufficient space in the second accommodating groove **12120** to accommodate the conductive part **22**.

[0370] Certainly, in other embodiments of the present application, the fitting manner of the first cover plate **13** and the first post terminal **12** is not limited to being embedded in the second accommodating groove **12120**. The first cover plate **13** may also be directly provided outside the first post terminal **12** as a covering, that is, directly lids the opening of the second accommodating groove **12120**, as long as it is conducive to the fit to the busbar component of the battery **100**, which is not limited in the embodiments.

[0371] Referring to FIGS. **24-26** again, optionally, in the embodiments of the present application, at least a part of the wall surface at the opening of the second accommodating groove **12120** formed by the first post terminal **12** is an inclined guiding surface **12126**, and the inclined guiding surface **12126** is configured to guide the first cover plate **13** to fit to the opening of the second accommodating groove **12120**. In the above technical solution, by processing the wall surface at the opening of the second accommodating groove **12120** into an inclined surface with guidance functionality, the difficulty in assembling the first cover plate **13** and the second accommodating groove **12120** can be reduced, thereby improving the assembly efficiency of the first cover plate **13** and the second accommodating groove **12120**. Moreover, when the first cover plate **13** is welded to the inclined guiding surface **12126**, the area at the welding position can be increased, thereby improving the reliability of the welding connection between the first cover plate **13** and the first post terminal **12** and mitigating the problem of weld pool collapse or laser penetration into the first

post terminal **12** during welding.
[0372] Specifically, referring to FIGS. **24-26**, the second accommodating groove **12120** includes a first groove segment **12124** and a second groove segment **12125** located on a side of the first groove segment **12124** proximal to the post terminal outer end surface **123**. The cross-sectional area of the second groove segment **12125** is greater than the cross-sectional area of the first groove segment **12124**, such that the second accommodating groove **12120** is in the shape of a stepped groove, and a step surface **12127** is formed at the connection position of the first groove segment **12124** and the second groove segment **12125**, such that when the first cover plate **13** is embedded in the second accommodating groove **12120**, the first cover plate can be specifically embedded in the second groove segment **12125** and supported by the step surface **12127**.
[0373] In the above technical solution, by providing the second accommodating groove **12120** in a stepped groove form, the first cover plate **13** can be stably fitted at the opening position of the second accommodating groove **12120**, thereby improving the connection stability between the first cover plate **13** and the first post terminal **12**. In addition, by defining the groove depth of the first groove segment **12124**, the second accommodating groove **12120** is provided with sufficient space to accommodate the conductive part **22**.
[0374] Further, when the wall surface at the opening of the second accommodating groove **12120** formed by the first post terminal **12** is the inclined guiding surface **12126**, the cross-sectional area of the second groove segment **12125** may be set to gradually increase in a direction close to the post terminal outer end surface **123**, such that the side wall of the second groove segment **12125** is formed as the inclined guiding surface **12126**, which facilitates processing and can easily and effectively meet the guidance requirements.
[0375] Referring to FIGS. **24-26** again, in some embodiments, the first cover plate **13** is provided with a stress relief groove **133**, and the stress relief groove **133** is located in an outer peripheral region of the first cover plate **13** to assist the first cover plate **13** in stress relief.
[0376] In the above technical solution, by providing the stress relief groove **133** on the first cover plate **13**, the stress generated during the processing of the first cover plate **13** itself or the electrical connection between the first cover plate **13** and the first post terminal **12** can be relieved, so as to alleviate the related problems such as deformation or damage of the first cover plate **13** caused by stress.
[0377] Specifically, when the first cover plate **13** and the second accommodating groove **12120** are embedded and welded, the stress generated by welding can be relieved by utilizing the stress relief groove **133**, thereby improving the lateral heat conduction and reducing the probability of damage or deformation of the first cover plate **13**. Meanwhile, when the first cover plate **13** is in the above composite form including the first conductive member **131** and the second conductive member **132**, the stress relief groove **133** may be provided on the first conductive member **131** and located in the outer peripheral region of the second conductive member **132**. When the first conductive member **131** and the second accommodating groove **12120** are embedded and welded, the stress generated by welding can be relieved by utilizing the stress relief groove **133**, thereby improving the lateral heat conduction and reducing the probability of damage or deformation of the second conductive member **132**. Moreover, when the second conductive member **132** and the first conductive member **131** are embedded and welded, the stress generated by welding can be relieved by utilizing the stress relief groove **133**, thereby improving the lateral heat conduction and reducing the probability of causing the first conductive member **131** to deform that may cause the first conductive member **131** to be unable to be embedded with the second accommodating groove **12120**.
[0378] Referring to FIGS. **27-28**, in the embodiments of the present application, the housing assembly **1** may further be provided with a second cover plate **14** as required. The second cover plate **14** lids the first perforation **12130** and is located outside of the conductive part **22** in the second accommodating groove **12120**.

[0379] It is worth noting that when the housing assembly **1** includes the second cover plate **14**, the housing assembly **1** may also include the first cover plate **13**, or may not include the first cover plate **13**. Further, when the housing assembly **1** includes both the second cover plate **14** and the first cover plate **13**, the first cover plate **13** may be in the composite form made of a plurality of materials, or may be in the non-composite form made of the same material.
[0380] In the above technical solution, at least a part of the conductive part **22** is located in the second accommodating groove **12120**, and the second cover plate **14** lids the part of the conductive part **22**. The second cover plate **14** also lids the first perforation **12130**, such that when the electrolytic solution enters the second accommodating groove **12120** from the first perforation **12130**, the problem of the part of the electrolytic solution overflowing from the first post terminal **12** can be alleviated through the second cover plate **14**, thereby improving the reliability of the battery cell **10**.
[0381] For example, as shown in FIGS. **27-28**, when a part of the conductive part **22** is sandwiched between the second cover plate **14** and the second end wall **12121**, the part of the conductive part **22**, the second cover plate **14**, and the second end wall **12121** can be welded together by using laser welding, so as to improve the reliability of the connection between the first post terminal **12** and the conductive part **22**. Furthermore, since the second cover plate **14** can press the conductive part **22**, the second cover plate **14** may be used to improve the stability of the conductive part **22** accommodated in the second accommodating groove **12120**.
[0382] Referring to FIGS. **33-35**, in some embodiments, the battery cell **10** further includes a support **3**, the support **3** is located in the housing **11** and on a side of the active substance-coated part **21** proximal to the first post terminal **12**, the support **3** is provided with a clearance hole **31** configured to provide clearance for the conductive part **22**, the conductive part **22** is suitable for extending to a side of the support **3** distal to the active substance-coated part **21** through the clearance hole **31** to be welded to the first post terminal **12**, thereby ensuring the normal charging and discharging operations of the battery cell **10**.
[0383] In the above technical solution, by providing the support **3** on the side of the active substance-coated part **21** proximal to the first post terminal **12**, the active substance-coated part **21** can be separated from the housing **11** by utilizing the support **3**, thereby improving the reliability of the battery cell **10**. Furthermore, by providing the clearance hole **31** on the support **3**, the conductive part **22** can be guided and constrained to be fitted to the first post terminal **12** by passing through the clearance hole **31**, thereby eliminating the need for the conductive part **22** to bypass the edge of the support **3** to approach the first post terminal **12**, which can not only simplify the arrangement of the conductive part **22**, save the material of the conductive part **22**, and reduce the cost, but also reduce the risk of short circuit connection between the conductive part **22** and the active substance-coated part **21** by the support **3** supporting and guiding the conductive part **22** to be fitted to the first post terminal **12**, so as to further improve the reliability of the battery cell **10**.
[0384] In some embodiments, the post terminal body **1201** is provided with a first accommodating part **121**, the support **3** is provided with a guiding part **32**, the guiding part **32** defines, in an enclosing manner, at least a part of the clearance hole **31**, and at least a part of the guiding part **32** extends to the first accommodating part **121**.
[0385] It is worth mentioning that the guiding part **32** protrudes from the support **3** and extends into the first accommodating part **121**, and at least a part of the clearance hole **31** is formed in the guiding part **32**, such that when the conductive part **22** is provided in the clearance hole **31** in a penetrating manner, at least a part of the conductive part **22** can be easily accommodated in the first accommodating part **121**, thereby improving the assembly efficiency of the conductive part **22**; meanwhile, by providing the guiding part **32**, the fits between the support **3** and the first post terminal **12**, and between the support **3** and the conductive part **22** are tighter and more reliable, such that the structure of the battery cell **10** becomes more compact, which is more conducive to improving the energy density of the battery cell **10**.

[0386] Referring to FIGS. **33-35**, optionally, the support **3** is provided with a third groove **38**. At least a part of the first post terminal **12** located in the housing **11** is accommodated in the third groove **38**.
[0387] In the above technical solution, by providing the third groove **38** on the support **3**, at least a part of the part of the first post terminal **12** located in the housing **11** is accommodated in the third groove **38** of the support **3**, such that the compactness of the structure can be improved. In one aspect, it is conducive to reducing the space occupied by the support **3** in the housing **11**, and in another aspect, it is also conducive to improving the stability and reliability of the first post terminal **12**, so as to ensure the reliability and stability of the electrical connection between the first post terminal **12** and the battery cell assembly **2**, thereby improving the reliability and stability of the charging and discharging operations of the battery cell **10**.
[0388] In addition, in some embodiments, the guiding part **32** may be configured to participate in defining the third groove **38**, so as to simplify the structure of the support **3** and reduce the design and processing difficulties of the support **3**, which is conducive to increasing the wall thickness of the guiding part **32** and improving the guiding reliability of the conductive part **32**. Furthermore, it is also conducive to improving the stability and reliability of the first post terminal **12**, so as to ensure the reliability and stability of the electrical connection between the first post terminal **12** and the battery cell assembly **2**, and improve the reliability and stability of the charging and discharging operations of the battery cell **10**.
[0389] Referring to FIGS. **33-35**, in some embodiments, the clearance hole **31** includes a first hole segment **311** and a second hole segment **312**, the second hole segment **312** is located on a side of the first hole segment **311** proximal to the active substance-coated part **21**, and the cross-sectional area of the second hole segment **312** gradually increases in a direction distal to the first hole segment **311**. The active substance-coated part **21** includes a current collector **211** and an active substance layer **212** provided on the current collector **211**, the conductive part **22** includes a tab part **221** electrically connected to the current collector **211**, the tab part **221** includes a plurality of tab plates **2211**, parts of the plurality of tab plates **2211** proximal to the current collector **211** converge to form a first gathering part **2212**, parts of the plurality of tab plates **2211** distal to the current collector **211** converge and are connected to form a second gathering part **2213**, the first gathering part **2212** connects the second gathering part **2213** and the active substance-coated part **21**, at least a part of the first gathering part **2212** is accommodated in the second hole segment **312**, and the second gathering part **2213** is provided in the first hole segment **311** in a penetrating manner.
[0390] In the above technical solution, by providing the clearance hole **31** to include the second hole segment **312** that gradually expands in the direction toward the active substance-coated part **21**, it is convenient for the second hole segment **312** to accommodate more first gathering parts **2212**, so as to improve the compactness of the fit between the support **3** and the battery cell assembly **2**, such that the overall volume of the battery cell **10** is smaller, and the battery **100** can accommodate a greater number of battery cells **10**, thereby improving the volumetric energy density of the battery **100**. In addition, in the above technical solution, the specific explanations of the first gathering part **2212** and the second gathering part **2213** have been provided in the previous embodiments and will not be repeated herein.
[0391] In some embodiments, the support **3** is of an integrated structure; or, referring to FIG. **36**, the support **3** is of a split-type structure and includes a first support **33** and a second support **34** that are separable, and a clearance hole **31** is defined between the first support **33** and the second support **34**.
[0392] In the above technical solution, the clearance hole **31** is formed in the form of a through hole penetrating the support **3**. As such, the support **3** of the integrated structure is convenient to process, the support **3** has good reliability, and the support **3** can be conveniently assembled with the housing assembly **1**, thereby improving the assembly efficiency and fitting stability. It can be understood that how to process the support **3** can be specifically selected according to the material

of the support **3**. For example, when the support **3** is an insulating plastic member, the support **3** of an integrated structure may be obtained by injection molding.

[0393] Referring to FIG. **37**, when the support **3** is of a split-type structure, the support **3** includes a first support **33** and a second support **34** that are separable. The first support **33** and the second support **34** are both of a long-stripped plate-shaped structure and can be detachably connected, for example, in insertion fit or snap fit, to facilitate the assembly. Meanwhile, a half-hole structure is provided on a side of the first support **33** proximal to the second support **34**, and another half-hole structure of a matched shape is correspondingly provided on a side of the second support **34** proximal to the first support **33**. The half-hole structure of the first support **33** and the half-hole structure of the second support **34** together define, in an enclosing manner, the annular clearance hole **31**. That is, the clearance hole **31** is defined between the first support **33** and the second support **34**.

[0394] In the above technical solution, the clearance hole **31** is defined through the cooperation of the first support **33** and the second support **34**. When the support **3** and the battery cell assembly **2** are assembled, it is not necessary to pass the conductive part **22** from one end of the clearance hole **31** to the other end. Instead, the first support **33** and the second support **34** can be assembled at the position of the conductive part **22** to clamp the conductive part **22**, such that the clearance hole **31** surrounds the conductive part **22**, thereby facilitating the assembly of the support **3** and the battery cell assembly **2** and improving the assembly efficiency.

[0395] As an optional solution, when the cross-section of the clearance hole **31** is long strip-shaped, the first support **33** and the second support **34** are separately provided on two sides of the clearance hole **31** in the width direction. For example, if the width direction of the clearance hole **31** is a left-right direction, the first support **33** and the second support **34** are located on the left and right sides of the clearance hole **31**, so as to facilitate the fit of the first support **33**, the second support **34**, and the conductive part **22**.

[0396] Referring FIGS. **33**, **38** and **39**, in the embodiments of the present application, the composition of the support **3** is not limited to this. For example, the edge of the support **3** can also be provided with a housing entry guiding surface **35**. The housing entry guiding surface **35** can be an inclined surface or a curved surface, and is projected in the axial direction R of the first post terminal **12**. The orthographic projection of the active substance-coated part **21** is completely located within the range of the orthographic projection of the support **3**, and the orthographic projection of the support **3** exceeds the range of the orthographic projection of the active substance-coated part **21**. During assembly, the support **3** and the battery cell assembly **2** may be pre-assembled together, and then the pre-assembled assembly is mounted into the housing **11**. During the mounting, the support **3** is located at the front end of the active substance-coated part **21**, that is, the support **3** enters the housing **11** before the active substance-coated part **21**, such that the difficulty of the support **3** entering the housing **11** can be reduced by utilizing the housing entry guiding surface **35**, and the active substance-coated part **21** can be protected by utilizing the relatively large projection area of the support **3**, thereby reducing the probability of scratching and damaging the active substance-coated part **21** and the housing **11**, and improving the assembly efficiency and the success rate. Moreover, the contact area between the support **3** and the active substance-coated part **21** can be increased, such that the stress concentration problem can be alleviated, and other structural members can be saved.

[0397] Referring to FIG. **38**, in some embodiments of the present application, the battery cell **10** may further include an inner insulating member **4**. The inner insulating member **4** is located in the housing **11** and wrapped around the active substance-coated part **21**, and the inner insulating member **4** is connected to the support **3**. In the above embodiments, in one aspect, by wrapping the active substance-coated part **21** with the inner insulating member **4**, the insulation reliability between the active substance-coated part **21** and the housing **11** can be improved, the corrosion of the housing **11** caused by the contact between the active substance-coated part **21** and the housing

11 can be reduced or prevented, and the leakage of the electrolytic solution caused by the corrosion of the housing **11** can be reduced, thereby improving the reliability of the battery cell **10**. In another aspect, connecting the inner insulating member **4** to the support **3** can reduce the difficulty of fixing the inner insulating member **4** and improve the reliability of the inner insulating member **4** wrapped outside the active substance-coated part **21**.

[0398] Referring to FIG. **38**, in the embodiments of the present application, the support **3** includes a body part **36** and an extending part **37**. The body part **36** is located on a side of the active substance-coated part **21** proximal to the first post terminal **12**, and the extending part **37** is connected to the body part **36** and is located in the outer peripheral region of the active substance-coated part **21**. For example, the extending part **37** can be connected to the circumferential edge of the body part **36** to form an annular extending structure connected to the body part **36**, or can extend from a part of the circumference of the main body part **36** to form a block structure protruding relative to the body part **36**. In one aspect, by the arrangement of the extending part **37**, a limiting fit to the active substance-coated part **21** can be realized, so as to alleviate the problem of corrosion caused by carbon powder falling off the edge of the active substance-coated part **21** overlapping the housing **11**. In another aspect, by the arrangement of the extending part **37**, the inner insulating member **4** can also be fixed, thereby improving the connection reliability between the inner insulating member **4** and the support **3** and realizing a better insulation effect.

[0399] Illustratively, referring to FIG. **38**, the body part **36** and the extending part **37** can define a positioning groove **39** located on a side of the extending part **37** distal to the active substance-coated part **21**, and an end part of the inner insulating member **4** is embedded in the positioning groove **39** to prevent the inner insulating member **4** from protruding from the edge of the body part **36**. In this way, when entering the housing, the body part **36** can be used to protect the inner insulating member **4**, thereby reducing the probability of scratching and damaging the inner insulating member **4** and the housing **11**.

[0400] Specifically, referring to FIG. **39**, the inner insulating member **4** may be an integrated film, and is provided with a body part **41** located on both sides of the active substance-coated part **21** in the thickness direction and a connecting part **42** connecting the two body part parts **41**. The connecting part **42** is located on a side of the active substance-coated part **21** distal to the first post terminal **12**, and an edge of the body part **41** on a side distal to the connecting part **42** extends to the extending part **37** and is connected to the extending part **37**, thereby realizing better insulation performance and facilitating the connection.

[0401] In the embodiments of the present application, the specific method for providing the first post terminal **12** on the housing **11** is not limited, for example, by riveting or by welding, which will be separately described below.

[0402] In some embodiments, referring to FIGS. **56** and **57**, the housing **11** is provided with a first wall **110**, a mounting hole **113** is formed on the first wall **110**, and the post terminal body **1201** is provided in the mounting hole **113**; taking a plane where the cross-section of the mounting hole **113** is located as a projection plane, in a direction perpendicular to the projection plane, a ratio of a projection area of the first welding part **71** on the projection plane to a projection area of the first wall **110** on the projection plane is in a range of 0.1%-1%.

[0403] The cross-section of the mounting hole **113** is perpendicular to the axial direction (a third direction Z) of the mounting hole **113**, and the projection direction in the above conditions is parallel to the axial direction of the mounting hole **113**. As such, the orthographic projection area of the first welding part **71** can be understood as an orthographic projection area of the connection region between the conductive part **22** and the post terminal body **1201** on the cross-section of the mounting hole **113**, and thus the orthographic projection area of the first welding part **71** on the cross-section of the mounting hole **113** can reflect the area of the connection area between the conductive part **22** and the post terminal body **1201**. If the orthographic projection area of the first welding part **71** on the cross-section of the mounting hole **113** meets the above conditions, then the

equivalent resistance between the conductive part **22** and the post terminal body **1201** can be reduced to a certain extent, the current passage area of the first post terminal **12** can be increased, and the current passage capacity of the first post terminal **12** can be increased, which is conducive to increasing the charging speed of the battery cell **10** and the fast charging performance of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent.

[0404] In the above technical solution, by setting the ratio of the projection area of the first welding part **71** on the projection plane to the projection area of the first wall **110** on the projection plane to be in the range of 0.1%-1%, the effective current passage area between the conductive part **22** and the post terminal body **1201** is increased, the current passage area of the first post terminal **12** is increased, and the current passage capacity of the first post terminal **12** is increased, which is conducive to increasing the charging speed of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent and reducing the current passage temperature of the first post terminal **12**, and thus helping to reduce the risk of loss of control of the battery cell **10**.

[0405] In some embodiments, referring to FIG. **57**, the housing **11** is provided with a mounting hole **113**, the post terminal body **1201** includes a post terminal body part **12***a*, a first limiting stage part **12***b*, and a second limiting stage part **12***c* that are integrally formed, the post terminal body part **12***a* is provided in the mounting hole **113** of the housing **11** in a penetrating manner, the first limiting stage part **12***b* and the second limiting stage part **12***c* are provided at both ends of the post terminal body part **12***a* in an axial direction of the mounting hole **113**, the first limiting stage part **12***b* is in limiting fit to an outer side of the housing **11**, and the second limiting stage part **12***c* is in limiting fit to an inner side of the housing **11**, such that the post terminal body **1201** is riveted to the housing **11**.

[0406] It can be seen that the first limiting stage part **12***b* and the second limiting stage part **12***c* separately extend in a radial direction of the mounting hole **113** to the radial outer side of the peripheral wall of the mounting hole **113**. The first limiting stage part **12***b* can limit the movement of the first post terminal **12** relative to the housing **11** in a direction toward the inner side of the housing **11**, whereas the second limiting stage part **12***c* can limit the movement of the first post terminal **12** relative to the housing **11** in a direction toward the outside of the housing **11**, such that the first post terminal **12** is easy to be reliably mounted at the mounting hole **113** through the first limiting stage part **12***b* and the second limiting stage part **12***c*, so as to realize the fixed connection between the first post terminal **12** and the housing **11** and facilitate the assembly of the first post terminal **12** and the housing **11**; moreover, there is no need to adopt other connection modes between the first post terminal **12** and the housing **11**, that is, it is convenient to achieve a reliable connection between the first post terminal **12** and the housing **11**, which is conducive to simplifying the structure of the housing assembly **1** and simplifying the assembly process of the housing assembly **1**.

[0407] Moreover, since the post terminal body part **12***a*, the first limiting stage part **12***b*, and the second limiting stage part **12***c* are integrally formed, components can be saved and costs can be reduced. Meanwhile, it is convenient to ensure the strength of the first post terminal **12**, such that the first post terminal **12**, after being fitted to the housing **11**, is not easy to separate from the housing **11** due to vibration or external pulling during the charging and discharging processes of the battery cell **10**, and also not easy to crack or be damaged due to vibration or external pulling, which can improve the stability and reliability of the housing assembly **1**, thereby improving the stability and reliability of the battery cell **10**.

[0408] Illustratively, the axial direction of the mounting hole **113** is the third direction Z, the through mounting hole **113** is formed on the side wall of the housing **11** in the third direction Z, and the first limiting stage part **12***b* and the second limiting stage part **12***c* are provided at both ends of the post terminal body part **12***a* along the third direction Z.

[0409] It should be noted that in the above technical solution, the post terminal of the housing assembly **1** may be one or more. At least one post terminal is a first post terminal **12** including a post terminal body part **12***a*, a first limiting stage part **12***b*, and a second limiting stage part **12***c* that are integrally formed, or a part of the post terminals on the housing **11** is a first post terminal **12** including a post terminal body part **12***a*, a first limiting stage part **12***b* and a second limiting stage part **12***c* that are integrally formed, and the other part of the post terminals are other structures.
[0410] It can be understood that, in the present application, the first post terminal **12** can be used as a positive electrode post terminal or a negative electrode post terminal, which is not limited here.
[0411] For example, referring to FIG. **57**. FIG. **57** is a schematic diagram of an assembly process of the first post terminal **12** and the first wall **110** according to some embodiments of the present application. The first limiting stage part **12***b*, the second limiting stage part **12***c* and the post terminal body part **12***a* are an integrated member. Before the first post terminal **12** is riveted to the housing **11**, one of the first limiting stage part **12***b* and the second limiting stage part **12***c* can extend in the axial direction of the mounting hole **113**, and the other can extend in the radial direction of the mounting hole **113**. After the post terminal body part **12***a* is provided in the mounting hole **113** in a penetrating manner, the above one of the first limiting stage part **12***b* and the second limiting stage part **12***c* can be riveted to extend in the radial direction of the mounting hole **113** using tools and the like, so as to realize the riveting fixation of the first post terminal **12** and the housing **11**.
[0412] In some embodiments, as shown in FIGS. **60**, **61** and **65**, in the axial direction, a thickness of the first limiting stage part **12***b* is t1, where 2 mm≤t1≤3.2 mm, so as to take into account the riveting strength of the first post terminal **12** at the first limiting stage part **12***b* and the volumetric energy density of the battery cell **10** at the same time, thereby avoiding reducing the volumetric energy density of the battery cell **10** resulting from the thickness of the first limiting stage part **12***b* being set to be relatively large due to considering the riveting strength of the first post terminal **12** and meanwhile avoiding poor riveting strength of the first post terminal **12** at the first limiting stage part **12***b* resulting from the thickness of the first limiting stage part **12***b* being set to be relatively small due to considering the volumetric energy density of the battery.Math.cell **10**.
[0413] For example, t1 may be 2 mm, 2.2 mm, 2.5 mm, 2.7 mm, 2.9 mm, 3 mm, 3.2 mm, or the like.
[0414] In some embodiments, as shown in FIGS. **60**, **61** and **62**, in the radial direction of the mounting hole **113**, a width of the first limiting stage part **12***b* is x1, where x1≥1 mm, so as to enhance the limiting effect of the first limiting stage part **12***b* on the first post terminal **12**, thereby improving the riveting reliability of the first post terminal **12** and the housing **11** to a certain extent. The width d of the first limiting stage part **12***b* may be understood as a distance from the outer peripheral wall of the post terminal body part **12***a* to the outer side wall of the first limiting stage part **12***b* in the radial direction of the mounting hole **113**.
[0415] For example, x1 may be 1 mm, 1.2 mm, 1.5 mm, 1.8 mm, 2 mm, or the like.
[0416] In some embodiments, as shown in FIGS. **60**, **61** and **62**, in the axial direction, a thickness of the second limiting stage part **12***c* is t2, where t2≤2 mm, so as to take into account the riveting strength of the first post terminal **12** at the second limiting stage part **12***c* and the volumetric energy density of the battery cell **10** at the same time, thereby avoiding reducing the volumetric energy density of the battery cell **10** resulting from the thickness of the second limiting stage part **12***c* being set to be relatively large due to considering the riveting strength of the first post terminal **12** and meanwhile avoiding poor riveting strength of the first post terminal **12** at the second limiting stage part **12***c* resulting from the thickness of the second limiting stage part **12***c* being set to be relatively small due to considering the volumetric energy density of the battery.Math.cell **10**.
[0417] For example, t2 may be 2 mm, 1.8 mm, 1.5 mm, 1.4 mm, 1.2 mm, or the like.
[0418] In some embodiments, the distance between an end of the second limiting stage part **12***c* distal to the first limiting stage part **12***b* and the inner side wall of the housing **11** in the axial

direction of the mounting hole **113** is less than or equal to 2 mm, so as to further improve the energy density of the battery cell **10**.

[0419] In some embodiments, at least one of the first limiting stage part **12***b* and the second limiting stage part **12***c* is a member separate from and fixedly connected to the post terminal body part **12***a*. That is, the first limiting stage part **12***b* or the second limiting stage part **12***c* can be a member separate from and fixedly connected to the post terminal body part **12***a*, or the first limiting stage part **12***b* and the second limiting stage part **12***c* both can be members separate from and fixedly connected to the post terminal body part **12***a*. In this technical solution, since at least one of the first limiting stage part **12***b* and the second limiting stage part **12***c* is a member separate from the post terminal body part **12***a*, the first post terminal **12** is relatively easy to operate when assembly with the housing **11**, which can reduce the difficulty of assembly and facilitate subsequent disassembly and replacement, thereby reducing the use costs.

[0420] In some embodiments, at least one of the first limiting stage part **12***b* and the second limiting stage part **12***c* is connected to the post terminal body part **12***a* by welding.

[0421] In some embodiments, the post terminal body part **12***a*, the first limiting stage part **12***b*, and the second limiting stage part **12***c* are an integrated member. It can be understood that in this way, the assembly steps between the first post terminal **12** and the housing **11** can be reduced, the assembly process can be simplified, and the work efficiency can be improved. Meanwhile, by configuring the post terminal body part **12***a*, the first limiting stage part **12***b* and the second limiting stage part **12***c* as an integrated member, the mounting between the first post terminal **12** and the housing **11** can be made more reliable, and the risk of the first post terminal **12** falling off from the housing **11** due to the loosening of components of the split post terminal can be reduced.

[0422] Secondly, the post terminal body part **12***a*, the first limiting stage part **12***b* and the second limiting stage part **12***c* may be made of the same or different materials; certainly, the post terminal body **12***a*, the first limiting stage part **12***b*, and the second limiting stage part **12***c* can be separate members.

[0423] In some embodiments, as shown in FIGS. **60**, **61** and **62**, the battery **100** further includes an insulating and sealing component **8**, and the insulating and sealing component **8** is provided between the first post terminal **12** and the housing **11**, so as to achieve insulation and sealing between the first post terminal **12** and the housing **11**.

[0424] In some embodiments, as shown in FIGS. **60**, **61** and **62**, the insulating and sealing component **8** includes an insulating member **81** and a sealing member **82**. The insulating member **81** is provided between the first limiting stage part **12***b* and the housing **11**; the sealing member **82** is provided between the second limiting stage part **12***c* and the housing **11**, and a part of the insulating member **81** and/or a part of the sealing member are fitted between the post terminal body part **12***a* and the peripheral wall of the mounting hole **113**. The insulating member **81** can play an insulating role between the first limiting stage part **12***b* and the housing **11** to ensure insulation reliability, and the sealing member **82** can play a sealing role such that the electrolytic solution in the housing **11** is not easy to overflow.

[0425] In some embodiments, as shown in FIGS. **60**, **61** and **62**, a mating groove is formed on the outer side wall of the housing **11** to accommodate the insulating member **81**, which facilitates the limiting and mounting of the insulating member **8** and can avoid, to a certain extent, the misalignment of the insulating member **8** that tends to occur during the riveting process between the first post terminal **12** and the housing **11**. Meanwhile, under the premise that the housing **11** can be used reliably, by providing the mating groove, it is conducive to reducing a height of the insulating member **8** protruding from the outer side wall of the housing **11**, and thus it is conducive to reducing a height of the first post terminal **12** protruding from the outer side wall of the housing **11**, so as to improve the volumetric energy density (VED) of the battery cell **10**. Certainly, a mating groove may not be formed on the outer side wall of the housing **11**.

[0426] In some embodiments, as shown in FIGS. **60**, **61** and **62**, a mating protrusion is formed on

the inner side wall of the housing **11**, and the mating protrusion abuts against the sealing member **82**, so as to help improve the sealing reliability of the sealing member **82**. Certainly, a mating protrusion may not be formed on the inner side wall of the housing **11**.

[0427] For example, in the examples shown in FIGS. **60**, **61** and **62**, a mating groove is formed on the outer side wall of the housing **11** to accommodate the insulating member **8**, a mating protrusion is formed on the inner side wall of the housing **11**, and the mating protrusion abuts against the sealing member **82**.

[0428] Optionally, the insulating and sealing component **8** may be an integrated member, that is, the insulating member **81** and the sealing member **82** are an integrated member, and at this time, the insulating component **8** and the sealing component **82** may be made of the same or different materials. Certainly, the insulating member **8** and the sealing component **82** may be separate members.

[0429] Specifically, referring to FIGS. **40**-**42**, the first post terminal **12** may include a stopper part **1281** and a penetration part **1282** before riveting. During assembly, the stopper part **1281** is stopped inside the housing **11**, and the penetration part **1282** is provided in the mounting hole **113** in a penetrating manner. Then, a part of the penetration part **1282** located outside the housing **11** is riveted to form a flange part **1283**. The flange part **1283** is stopped outside the housing **11**, thereby achieving the mounting of the first post terminal **12**. It should be noted that the penetration part **1282** may refer to the post terminal body part **12***a* described below, the stopper part **1281** may refer to the second limiting stage part **12***c* described below, and the flange part **1283** may refer to the first limiting stage part **12***b* described below.

[0430] Optionally, referring to FIGS. **40** and **41**, the housing assembly **1** may include several sealing gaskets fitted between the housing **11** and the first post terminal **12**, e.g., the first sealing gasket **191** and the second sealing gasket **192** shown in FIG. **40**, and the like. The sealing gaskets are assembled in place before riveting. After the first post terminal **12** is riveted, the first post terminal **12** presses the sealing gaskets to form a seal, such that the sealing performance of the fit between the first post terminal **12** and the housing **11** can be improved using the sealing gaskets. The number, position and material of the sealing gaskets are not limited. For example, the material may be silicone, plastic, etc., which is not limited here.

[0431] Optionally, referring to FIG. **41**, a length c of the flange part **1283** may be greater than or equal to 1 mm, and a thickness d may be greater than or equal to 2 mm, so as to improve the riveting strength of the first post terminal **12**. When the length c of the flange part **1283** is less than 1 mm and/or the thickness d is less than 2 mm, the reliability of the first post terminal **12** and the housing **11** is reduced under relatively strong vibration.

[0432] For another example, in other embodiments of the present application, referring to FIGS. **6** and **7**, the first post terminal **12** may be of a split-type structure and connected by welding to be mounted in the housing **11**. For example, the first post terminal **12** includes a first part **1291** and a second part **1292**. At least a part of the first part **1291** is stopped outside the housing **11**, and at least a part of the second part **1292** is stopped inside the housing **11**. At least one of the first part **1291** and the second part **1292** is provided in the mounting hole **113** in a penetrating manner and connected to the other by welding (for example, laser welding), such that the mounting of the first post terminal **12** can be realized.

[0433] In some optional embodiments, referring to FIGS. **45** and **46**, a plurality of first post terminals **12** are provided and are all located on a surface of the housing **11** on the same side, thereby facilitating mounting and improving assembly efficiency.

[0434] It should be noted that the arrangement manner of the plurality of first post terminals **12** on the surface on the same side is not limited. For example, when the cross-section of the first post terminal **12** is a slender structure, for example, with the cross-sectional length greater than or equal to three times the cross-sectional width, such as an ellipse, a track shape, or a rectangle, the first post terminal can better match a thin and flat housing **11**. For example, the plurality of first post

terminals **12** are all provided on a surface of the housing **11** on a side in the height direction (referred to as a first wall surface **110**). The length direction of each of the first post terminals **12** is consistent with the length direction of the first wall surface **110** of the housing **11**, and the plurality of first post terminals **12** are spaced apart in the length direction and/or width direction of the first wall surface **110**.

[0435] For example, in the example shown in FIG. **45**, when the first wall surface **110** is provided with two first post terminals **12**, the two first post terminals **12** are spaced apart in the length direction of the first wall surface **110**. Optionally, referring to FIG. **45**, a part of the first post terminals **12** located outside the housing **11** (referred to as an exterior of the post terminal) is annular, and in the length direction of the first wall surface **110**, an inner ring length a1 of the exterior of the post terminal is greater than or equal to ⅓ of a length a0 of the first wall surface **110**, and in the width direction of the first wall surface **110**, an inner ring width b1 of the exterior of the post terminal is greater than or equal to ¾ of a width b0 of the first wall surface **110**. As such, the first post terminal **12** can provide a larger area for electrical connection to the busbar component, so as to further improve the current passage capacity of the first post terminal **12**. Illustratively, the inner ring length a1 of the exterior of the post terminal is greater than or equal to 50 mm, and the inner ring width b1 of the exterior of the post terminal is greater than or equal to 30 mm.

[0436] In addition, referring to FIG. **45**, when the first wall surface **110** is provided with two first post terminals **12**, and the two first post terminals **12** are spaced apart in the length direction of the first wall surface **110**, in some optional embodiments, each of the first post terminal **12** includes a part located inside the housing **11** (referred to as an interior of the post terminal). In the length direction of the first wall surface **110**, the length of the interior of the post terminal is greater than or equal to ⅓ of the length of the first wall surface **110**, and in the width direction of the first wall surface **110**, the width of the interior of the post terminal is greater than or equal to ¾ of the width of the first wall surface **110**. As such, the first post terminal **12** can provide a larger area for electrical connection to the conductive part **22**, so as to further improve the current passage capacity of the first post terminal **12**. Illustratively, the length of the interior of the post terminal is greater than or equal to 50 mm, and the width of the interior of the post terminal is greater than or equal to 30 mm.

[0437] For another example, in the example shown in FIG. **46**, when the first wall surface **110** is provided with four first post terminals **12**, two of the first post terminals **12** are spaced apart in the width direction of the first wall surface **110** to form a group, and a total of two groups are spaced apart in the length direction of the first wall surface **110**. Optionally, referring to FIG. **46**, a part of the first post terminals **12** located outside the housing **11** (referred to as an exterior of the post terminal) is annular, and in the length direction of the first wall surface **110**, an inner ring length a2 of the exterior of the post terminal is greater than or equal to ⅓ of a length a0 of the first wall surface **110**, and in the width direction of the first wall surface **110**, an inner ring width b2 of the exterior of the post terminal is greater than or equal to ⅕ of a width b0 of the first wall surface **110**. As such, the first post terminal **12** can provide a larger area for electrical connection to the busbar component, so as to further improve the current passage capacity of the first post terminal **12**. Illustratively, the inner ring length a2 of the exterior of the post terminal is greater than or equal to 50 mm, and the inner ring width b2 of the exterior of the post terminal is greater than or equal to 8 mm.

[0438] In addition, referring to FIG. **46**, when the first wall surface **110** is provided with four first post terminals **12**, two of the post terminals **12** are spaced apart in the width direction of the first wall surface **110** to form a group, and a total of two groups are spaced apart in the length direction of the first wall surface **110**, in some optional embodiments, the first post terminal **12** includes a part located inside the housing **11** (referred to as an interior of the post terminal). In the length direction of the first wall surface **110**, the length of the interior of the post terminal is greater than or equal to ⅓ of the length of the first wall surface **110**, and in the width direction of the first wall

surface **110**, the width of the interior of the post terminal is greater than or equal to ⅕ of the width of the first wall surface **110**. As such, the first post terminal **12** can provide a larger area for electrical connection to the conductive part **22**, so as to further improve the current passage capacity of the first post terminal **12**. Illustratively, the length of the interior of the post terminal is greater than or equal to 50 mm, and the width of the interior of the post terminal is greater than or equal to 8 mm.

[0439] In some embodiments, referring to FIGS. **45** and **46**, a part of the first post terminal **12** is located inside the housing **11**, and a part of the first post terminal **12** is located outside the housing **11**. An orthographic projection area of the part of the first post terminal **12** located outside the housing **11** on the first wall surface **110** is greater than or equal to 5% of an area of the first wall surface **110**. For example, an orthographic projection area of the part of the first post terminal **12** located outside the housing **11** on the first wall surface **110** is greater than or equal to 5%, 6%, 7%, 8%, 9%, 10%, or the like of the area of the first wall surface **110**. As such, the connection area between the first post terminal **12** and the busbar component can be increased, so as to increase the effective current passage area between the first post terminal **12** and the busbar component, which is conducive to improving the charging speed of the battery cell **10**.

[0440] In addition, in some embodiments, referring to FIG. **47**, a vertical height t1 of a part of the first post terminal **12** protruding from the outer surface of the first wall surface **110** (referred to as an exterior of the post terminal) from the first wall surface **110** may be less than or equal to 3.2 mm, and a vertical height t2 of a part of the first post terminal **12** protruding from the inner surface of the first wall surface **110** (referred to as an interior of the post terminal) from the first wall surface **110** may be less than or equal to 2 mm, so as to improve the volumetric energy density of the battery cell **10**.

[0441] FIG. **48** is a cross-sectional schematic diagram of the housing assembly **1** according to some embodiments of the present application; FIG. **49** is a cross-sectional schematic diagram of the housing assembly **1** according to some embodiments of the present application; FIG. **50** is an orthographic projection diagram of the battery cell **10** according to some embodiments of the present application; FIG. **51** is a cross-sectional view along the line E-E in FIG. **50**; FIG. **52** is a partial cross-sectional schematic diagram of the battery cell **10** according to some embodiments of the present application. Referring to FIGS. **48-52**, in the embodiments of the present application, the housing **11** specifically includes a housing body **111** and a housing cover **112**. The housing body **111** is of a square annular structure with one or both ends open. When one end of the housing body is open, the number of the housing cover **112** is one, and the housing cover lids an open position. When both ends of the housing body are open, the number of the housing cover **112** is two, and the housing covers lid both open ends of the housing body **111**, respectively.

[0442] Specifically, when the housing **11** includes the housing body **111** and the housing cover **112**, and one end of the housing body **111** is open, the housing body **111** is an integrally formed part, and may specifically be a square structure formed by stretching. In this case, the first post terminal **12** may be provided on at least one of the housing body **111** or the housing cover **112**. Illustratively, referring to FIG. **48**, the first post terminal **12** may be specifically provided at an end of the housing body **111** distal to the housing cover **112**. When the battery cell **10** is used in a vibration environment, the vibration at the connection between the housing body **111** and the housing cover **112** is relatively small, and the connection position of the housing body **111** and the housing cover **112** is unlikely to crack, which can improve the reliability of the battery cell **10** and help reduce the wall thickness of the housing body **111**, thereby reducing costs and weight, and facilitating miniaturization of the battery cell **10**.

[0443] As an optional solution, referring to FIG. **48** again, when a plurality of first post terminals **12** are provided, all the first post terminals **12** are provided at an end of the housing body **111** distal to the housing cover **112**. As such, when the battery cell **10** is used in a vibration environment, the vibration at the connection between the housing body **111** and the housing cover **112** is small, and

the connection position of the housing body **111** and the housing cover **112** is unlikely to crack, which can improve the reliability of the battery cell **10**. Furthermore, the wall thickness e1 of an end wall of the housing body **111** distal to the housing cover **112** may be reduced to less than or equal to 2 mm, and the wall thickness e2 of the side wall of the housing body **111** connecting the above end wall and the housing cover **112** may be reduced to less than or equal to 0.8 mm, thereby reducing costs and weight, and facilitating miniaturization of the battery cell **10**.

[0444] When the first accommodating groove **12110** corresponding to the mounting hole **113** is formed on the first post terminal **12**, the wall thickness of a part of the first post terminal **12** located on a side of the first accommodating groove **12110** distal to the active substance-coated part **21** is relatively small, such that the welding of the conductive part **22** to the first post terminal **12** can be achieved from the outside of the housing **11**. Referring to FIG. **48**, in the case where the housing **11** includes a housing body **111** and a housing cover **112**, and the housing cover **112** is provided at an open end of the housing body **111**, even if the first post terminal **12** is provided at a closed end of the housing body **111**, there is no need to worry about the problem that it is difficult to weld the conductive part **22** to the first post terminal **12** from the inside of the housing **11**, because the conductive part **22** and the first post terminal **12** can be welded from the outside of the housing **11**, such that the connection stability and reliability of the housing body **111** and the housing cover **112** can be improved by providing the first post terminal **12** at the closed end of the housing body **111**.

[0445] When the above second accommodating groove **12120** is formed on the first post terminal **12**, since the welding of the conductive part **22** to the first post terminal **12** can be realized from the outside of the housing **11** through the opening of the second accommodating groove **12120**, referring to FIG. **48**, in the case where the housing **11** includes a housing body **111** and a housing cover **112**, the housing cover **112** is provided at an open end of the housing body **111**, even if the first post terminal **12** is provided at a closed end of the housing body **111**, there is no need to worry about the problem that it is difficult to weld the conductive part **22** to the first post terminal **12** from the inside of the housing **11**, because the conductive part **22** and the first post terminal **12** can be welded from the outside of the housing **11**, such that the connection stability and reliability of the housing body **111** and the housing cover **112** can be improved by providing the first post terminal **12** at the closed end of the housing body **111**.

[0446] Certainly, referring to FIG. **49**, in other embodiments of the present application, all the first post terminals **12** may be separately provided on the housing cover **112** as required. As such, the assembly of the first post terminal **12** and the housing cover **112** is facilitated, which is not limited in the embodiments.

[0447] In addition, referring to FIGS. **50**-**52**, in the embodiments of the present application, when a plurality of first post terminals **12** are provided, the first post terminals **12** may be provided on two surfaces of the housing **11** on different sides. For example, a plurality of first post terminals **12** are provided and separately provided on surfaces of the housing **11** on two adjacent sides. For another example, a plurality of first post terminals **12** are provided and separately provided on surfaces of the housing **11** on two opposite sides.

[0448] When the first post terminals **12** are separately provided on the surfaces of the housing **11** on two opposite sides, the conductive part **22** can extend out of the active substance-coated part **21** proximal to the first post terminal **12** on each side, and the conductive part **22** is connected to the first post terminal **12** on the adjacent side in a fitting manner, such that the problem that the tab part **221** is pulled by the first post terminal **12** on the same side, resulting in breaking of the connection between the tab part **221** and the active substance-coated part **21**, thereby improving the reliability of the battery cell **10**. It is worth noting that the first post terminals **12** on two sides may be the same or different, and the connection modes between the first post terminals **12** on two sides and the conductive part **22** may be the same or different, which are not limited herein.

[0449] Certainly, in other embodiments of the present application, the first post terminal **12** may also be provided on a surface on a side of the largest area of the housing **11**. For another example,

in some optional embodiments of the present application, the first post terminal **12** may be located on the top surface of the housing **11**. For another example, in some optional embodiments of the present application, the first post terminal **12** may be located on the bottom surface of the housing **11**, and the like. When the first post terminal **12** is located on the bottom surface of the housing **11**, the accommodating part **121** may be used to accommodate the electrolytic solution, thereby increasing the cycle life of the battery cell **10**. In addition, when the first post terminal **12** is located on the bottom surface of the housing **11** and the support **3** is located at the bottom of the active substance-coated part **21**, the contact area between the support **3** and the active substance-coated part **21** can be increased, thereby mitigating the stress concentration problem and saving other supporting structural members.

[0450] Referring to FIG. **43**, in some embodiments of the present application, a pressure relief part **16** is provided on the housing **11**. The specific structure of the pressure relief part **16** is not limited. For example, the pressure relief part may be an explosion-proof valve or a weak part, which can be used to relieve pressure when the pressure in the battery cell **10** is high, so as to improve the reliability of the battery cell **10**.

[0451] Optionally, the pressure relief part **16** and the first post terminal **12** may be located on a surface of the housing **11** on the same side. As such, processing and assembly can be facilitated. Optionally, the pressure relief part **16** and the first post terminal **12** may also be provided on surfaces on two opposite sides of the housing **11**. As such, the space can be saved, the volume of the first post terminal **12** can be increased, and the adverse effects on the first post terminal **12** when the pressure relief part **16** relieves pressure can be reduced.

[0452] Referring to FIGS. **48** and **53** again, in the embodiments of the present application, the pressure relief part **16** may also be provided on the housing cover **112** as required. Since the housing cover **112** does not need to assume the function of mounting the first post terminal **12**, and the connection position of the housing cover **112** and the housing **11** is less affected by vibration during the charging and discharging processes of the battery cell **10** and is unlikely to crack, the thickness of the housing cover **112** is set to be relatively small, which is more convenient for processing and manufacture of the pressure relief part **16**. Illustratively, the pressure relief part **16** can be formed directly on the housing cover **112** in an integrated engraving manner, so as to fully improve the manufacturability of the battery cell **10**. It is worth noting that in the embodiments, the first post terminal **12** may be provided on the housing body **111** or the housing cover **112**, which is not limited herein. For example, the pressure relief part **16** may be integrally formed with the housing cover **112**, thereby facilitating processing, simplifying assembly, improving production efficiency, and reducing costs.

[0453] Referring to FIGS. **3-5**, **18**, and **23-24** again, the battery cell **10** according to a specific embodiment of the present application is described.

[0454] Referring to FIGS. **3-5**, the battery cell **10** is in the shape of a rectangular parallelepiped, and the height direction of the battery cell **10** is a first direction Z, the length direction of the battery cell **10** is a second direction X, and the thickness direction of the battery cell **10** is a third direction Y. The battery cell **10** includes a housing **11**. The housing **11** includes a housing body **111** and a housing cover **112**. The housing body **111** is of a square annular structure, one end of the housing body **111** in the first direction Z is open, and the other end in the first direction Z is closed. The housing cover **112** lids an open position of the housing body **111**.

[0455] Referring to FIGS. **3-5**, the closed end of the housing body **111** in the first direction Z is provided with two post terminals. The two post terminals are spaced apart in the second direction X to be a positive electrode post terminal and a negative electrode post terminal, respectively. The two post terminals are both first post terminals **12** provided with an accommodating part **121**, and the accommodating part **121** includes a second accommodating groove **12120**. Specifically, the first post terminal **12** includes a second end wall **12121** and a second side wall **12123**, the second end wall **12121** is located on a side of the second side wall **12123** proximal to the housing cover **112**,

and the second end wall **12121** and the second side wall **12123** define, in an enclosing manner, a second accommodating groove **12120**. A surface of the first post terminal **12** on a side distal to the housing cover **112** is a post terminal outer end surface **123**, the opening of the second accommodating groove **12120** is formed on the post terminal outer end surface **123**, a first perforation **12130** is formed on the second end wall **12121**, and the first perforation **12130** is located at a position of the second end wall **12121** proximal to the second side wall **12123**.

[0456] Referring to FIGS. **5** and **18**, the battery cell **10** further includes a battery cell assembly **2**. The battery cell assembly **2** includes an active substance-coated part **21** and a tab part **221**. The active substance-coated part **21** is accommodated in the housing **11**, and the tab part **221** extends through the first perforation **12130** into the second accommodating groove **12120** and is welded to the second end wall **12121**, such that the active substance-coated part **21** is electrically connected to the first post terminal **12** through the tab part **221**.

[0457] Referring to FIGS. **18**, **23** and **24**, a first cover plate **13** is embedded in an opening of the second accommodating groove **12120**, such that after the welding of the tab part **221** to the second end wall **12121** is completed, the opening of the second accommodating groove **12120** is closed by the fit between the first cover plate **13** and the first post terminal **12**. The first cover plate **13** is welded to the first post terminal **12** to form an electrical connection. Thereafter, when the battery cells **10** are electrically connected to each other by using a busbar component, the busbar component may be welded to the first cover plate **13** to achieve an electrical connection to the first post terminal **12**.

[0458] In the above technical solution, in one aspect, by providing the first post terminal **12** with the second accommodating groove **12120**, the weight of the first post terminal **12** can be reduced to a certain extent, so as to improve the gravimetric energy density of the battery cell **10** and the battery **100**. In another aspect, since the opening of the second accommodating groove **12120** is formed on the post terminal outer end surface **123** and the post terminal outer end surface **123** is a surface of the first post terminal **12** on a side distal to the active substance-coated part **21**, the second accommodating groove **12120** can be open in a direction away from the active substance-coated part **21**. In this way, when at least a part of the tab part **221** is accommodated in the second accommodating groove **12120**, the accommodation and arrangement of the tab part **221** can be easily realized through the opening of the second accommodating groove **12120**, and the welding operation between the tab part **221** and the first post terminal **12** can be easily realized through the opening of the second accommodating groove **12120**, thereby reducing the production difficulty of the battery cell **10** and improving the production efficiency of the battery cell **10**.

[0459] Furthermore, since the welding of the tab part **221** to the first post terminal **12** can be realized from the outside of the housing **11**, the first post terminal **12** can be provided on the closed end of the housing body **111**. In this way, when the battery cell **10** is used in a vibration environment, the vibration at the connection between the housing body **111** and the housing cover **112** is relatively small, and the connection position of the housing body **111** and the housing cover **112** is unlikely to crack, which can improve the reliability of the battery cell **10** and help reduce the wall thickness of the housing body **111**, thereby reducing costs and weight, and facilitating miniaturization of the battery cell **10**.

[0460] Meanwhile, since the second accommodating groove **12120** can be in communication with the interior of the housing **11** through the first perforation **12130**, the second accommodating groove **12120** can also serve as a buffering and temporary storage structure for the electrolytic solution, such that a larger number of electrolytic solution can be accommodated in the housing **11**. As the electrolytic solution will be consumed during the charging and discharging processes of the battery cell **10**, a greater amount of electrolytic solution can prolong the service life of the battery cell **10**. It is also due to the fact that the second accommodating groove **12120** can be in communication with the interior of the housing **11** through the first perforation **12130**, that the second accommodating groove **12120** can also serve as an accommodating and buffering structure

for gas generated inside the battery cell assembly **2**, reducing the expansion of the battery cell **10** and improving the reliability and stability of the battery cell **10**.

[0461] In some embodiments, referring to FIGS. **74** and **75**, the battery cell **10** further includes an outer insulating member **5**. The outer insulating member **5** is wrapped outside the housing **11**. In this solution, the outer insulating member **5** plays an insulating role and is configured to separate the housing **11** from external components. For example, the outer insulating member **5** is a blue film.

[0462] In some embodiments, referring to FIG. **74**, the housing **111** is provided with a first wall **110**, a mounting hole **113** is formed on the first wall **110**, the post terminal body **1201** is provided in the mounting hole **113**, the battery cell **10** further includes a patch **9** covering an outer side of the first wall **110**, the outer insulating member **5** includes an outer insulating film **52**, the outer insulating film **52** is an integrated film, the outer insulating film **52** is provided with a connecting part **51**, and the connecting part **51** extends to the an outer side of the first wall **110** and is connected to the patch **9**.

[0463] In the above technical solution, the connecting part **51** can be stacked with the patch **9** in the axial direction of the mounting hole **113** to facilitate the connection between the connecting part **51** and the patch **9**. At this time, the outer insulating film **52** and the patch **9** can at least separate the first post terminal **12** and the housing **11** on the first wall **110**, so as to improve the insulation reliability between the first post terminal **12** and the housing **11**, thereby improving the reliability of the battery cell **10**. For example, in the examples shown in FIGS. **74** and **75**, the connecting part **51** can extend around the outer periphery of the first wall **110** to form an annular shape, such that the outer insulating member **5** is wrapped outside all walls of the housing **11** except the first wall **110**. The connecting part **51** is provided between the patch **9** and the first wall **110**, such that the patch **9** plays a certain protective role in the connection between the connecting part **51** and the patch **9**.

[0464] Optionally, the outer insulating member **5** is connected to the housing **11** in a bonding manner, and the patch **6** is connected to the first wall **11***a* in a bonding manner.

[0465] In some embodiments, the first post terminal **12** is of a solid structure, and a second welding part **72** is formed on a part of the first post terminal **12** located outside the housing **11**. In this way, the structure of the first post terminal **12** is simple and easy to process.

[0466] In some embodiments, a minimum distance between an edge of the outer insulating film **52** and the first post terminal **12** is greater than or equal to 3 mm. As such, a creepage distance between the first post terminal **12** and the housing **11** may be greater than or equal to 3 mm, which is conducive to improving the insulation and voltage resistance performance between the first post terminal **12** and the housing **11**. For example, a minimum distance t between the connecting part **51** and the post terminal **12** may be 3 mm, 4 mm, 4.7 mm, 5 mm, 5.2 mm, or the like.

[0467] In some embodiments, as shown in FIGS. **56**-**60** and **66**, taking the plane where the cross-section of the mounting hole **113** is located as a projection plane, in a direction perpendicular to the projection plane, a projection area of the first welding part **71** on the projection plane is greater than or equal to 0.1% of a projection area of the first wall **110** on the projection plane.

[0468] In the above technical solution, the cross-section of the mounting hole **113** is perpendicular to the axial direction of the mounting hole **113**, and the projection direction in the above conditions is parallel to the axial direction of the mounting hole **113**. As such, the projection area of the first welding part **71** on the projection plane can be understood as a projection area of the connection region between the conductive part **22** and the post terminal body **1201** on the projection plane, and thus the projection area of the first welding part **71** on the projection plane can reflect the area of the connection region between the conductive part **22** and the post terminal body **1201**. If the projection area of the first welding part **71** on the projection plane meets the above conditions, the equivalent resistance between the conductive part **22** and the post terminal body **1201** can be reduced to a certain extent, the current passage area of the first post terminal **12** can be increased,

and the current passage capacity of the first post terminal **12** can be increased, which is conducive to increasing the charging speed of the battery cell **10** and the fast charging performance of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent.

[0469] In the above technical solution, by setting the projection area of the first welding part **71** between the conductive part **22** and the post terminal body **1201** on the projection plane to be greater than or equal to 0.1% of the projection area of the first wall **110** on the projection plane, the effective current passage area between the conductive part **22** and the post terminal body **1201** is greater than or equal to 0.1% of the projection area of the first wall **110** on the projection plane, so as to increase the effective current passage area of the conductive part **22** and the post terminal body **1201**, increase the current passage area of the first post terminal **12**, and improve the current passage capacity of the first post terminal **12**, which is conducive to increasing the charging speed of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent and reducing the current passage temperature of the first post terminal **12**, and thus helping to reduce the risk of loss of control of the battery cell **10**.

[0470] In some embodiments, in a direction perpendicular to the projection plane, a projection area of the first welding part **71** on the projection plane is greater than or equal to 0.15% of a projection area of the first wall **110** on the projection plane.

[0471] In the above technical solution, by setting the orthographic projection area of the first welding part **71** on the projection plane to be greater than or equal to 0.15% of the orthographic projection area of the first wall **110** on the projection plane, the effective current passage area between the conductive part **22** and the post terminal body **1201** is further increase, which is conducive to improving the fast charging performance of the battery cell **10**.

[0472] In some embodiments, a projection area of the first welding part **71** on the projection plane is greater than or equal to 5 mm.sup.2. For example, a projection area of the first welding part **71** on the projection plane may be 5 mm.sup.2, 6 mm.sup.2, 8 mm.sup.2, 9 mm.sup.2, 10 mm.sup.2, or the like.

[0473] In the above technical solution, by setting the projection area of the first welding part **71** on the projection plane to be greater than or equal to 5 mm.sup.2, the current passage capacity and thermal diffusion capacity of the first post terminal **12** are effectively improved.

[0474] For example, in the example shown in FIG. **59**, the projection of the first welding part **71** on the projection plane extends into a long strip shape (the corresponding weld seam is a spiral long strip shape). Taking the projection of the first welding part **71** on the projection plane extending along a straight line as an example, the length of the projection of the first welding part **71** on the projection plane is greater than or equal to 10 mm, and the width of the projection of the first welding part **71** on the projection plane is greater than or equal to 5 mm; certainly, the projection of the first welding part **71** on the projection plane may extend along a curve (including but not limited to a smooth curve or a broken line), for example, the projection of the first welding part **71** on the projection plane extends into a closed ring (such as a circular ring and a polygonal ring). In addition, the shape of the projection of the first welding part **71** on the projection plane may be a solid circle.

[0475] Further, a projection area of the first welding part **71** on the projection plane is greater than or equal to 7 mm.sup.2. For example, a projection area of the first welding part **71** on the projection plane may be 7 mm.sup.2, 7.8 mm.sup.2, 9.5 mm.sup.2, 11 mm.sup.2, or the like.

[0476] Illustratively, taking the case where the shape of the projection of the first welding part **71** on the projection plane is a solid circle as an example, the diameter of the circle corresponding to the projection of the first welding part **71** on the projection plane is greater than or equal to 3 mm.

[0477] In some embodiments, in a direction perpendicular to the projection plane, a part of the conductive part **22** overlapping with the post terminal body **1201** is a weldable region of the conductive part **22**; that is, the weldable region of the conductive part **22** is stacked with the post

terminal body **1201** in the direction perpendicular to the projection plane, or in other words, in the direction perpendicular to the projection plane, the projection of the weldable region of the conductive part **22** on the projection plane overlaps with at least a part of the projection of the post terminal body **1201** on the projection plane. As such, the weldable region of the conductive part **22** can be understood as a region provided by the conductive part **22** that can be welded to the post terminal body **1201**, and therefore the area of the weldable region must be greater than or equal to the orthographic projection area of the first welding part **71** on the projection plane.

[0478] In the direction perpendicular to the projection plane, the projection area of the first welding part **71** on the projection plane is greater than or equal to 20% of the area of the weldable region of the conductive part **22**. As such, the projection area of the first welding part **71** on the projection plane accounts for an appropriate proportion, so as to facilitate the welding operation between the conductive part **22** and the post terminal body **1201** under the premise of appropriately increasing the current passage capacity and thermal diffusion capacity of the first post terminal **12**.

[0479] For example, the orthographic projection area of the first welding part **71** on the projection plane is 20%, 25%, 35%, 40%, 50%, 60%, or the like of the area of the weldable region of the conductive part **22**.

[0480] In some embodiments, in a direction perpendicular to the projection plane, a projection area of the first welding part **71** on the projection plane is greater than or equal to 30% of an area of a weldable region of the conductive part **22**.

[0481] In the above technical solution, by setting the orthographic projection area of the first welding part **71** on the projection plane to be greater than or equal to 30% of the area of the weldable region of the conductive part **22**, it is conducive to further taking into account the current passage capacity of the first post terminal **12** and the convenience of the welding operation. For example, the orthographic projection area of the second welding part **7** on the projection plane is 30%, 45%, 55%, 65%, 70%, or the like of the area of the weldable region of the guiding part **22**.

[0482] In some embodiments, taking the cross-section of the mounting hole **113** as a projection plane, in a direction perpendicular to the projection plane, a part of the second gathering part **2213** overlapping with the first post terminal **12** is a weldable region of the tab part **221**, and the weldable region of the tab part **221** is stacked with the first post terminal **12** in the direction perpendicular to the projection plane, or in other words, in the direction perpendicular to the projection plane, the orthographic projection of the weldable region of the tab part **221** on the projection plane overlaps with at least a part of the orthographic projection of the first post terminal **12** on the projection plane. As such, the weldable region of the tab part **221** can be understood as a region provided by the tab part **221** that can be welded to the first post terminal **12**, and therefore the area of the weldable region of the tab part **221** must be greater than or equal to the orthographic projection area of the first welding part **71** on the projection plane.

[0483] The area of the weldable region of the tab part **221** is greater than or equal to 40% of the total area of the tab part **221**, such that the tab part **221** can provide a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal **12**. For example, the area of the weldable region of the tab part **221** is 40%, 45%, 50%, 65%, 70%, or the like of the total area of the tab part **221**.

[0484] In some embodiments, the area of the weldable region of the tab part **221** is greater than or equal to 60% of the total area of the tab part **221**. In the above technical solution, by setting the area of the weldable region of the tab part **221** to be greater than or equal to 60% of the total area of the tab part **221**, the tab part **221** can provide a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal **12**. For example, the area of the weldable region of the tab part **221** is 60%, 68%, 72%, 80% or the like of the total area of the tab part **221**.

[0485] In some embodiments, as shown in FIGS. **62**-**66**, the conductive part **22** includes a tab part **221** and an adapting piece **222**. The connection and arrangement of the adapting piece **222** refer to

the corresponding content described above. In a direction perpendicular to the projection plane, a part of the adapting piece **222** overlapping with the first post terminal **12** is a weldable region of the adapting piece **222**, and the weldable region of the adapting piece **222** is overlapped with the first post terminal **12** in the direction perpendicular to the projection plane, or in other words, in the direction perpendicular to the projection plane, the orthographic projection of the weldable region of the adapting piece **222** on the projection plane overlaps with at least a part of the orthographic projection of the first post terminal **12** on the projection plane. As such, the weldable region of the adapting piece **222** can be immediately a region provided by the adapting piece **222** that can be welded to the first post terminal **12**, and therefore the area of the weldable region of the adapting piece **222** must be greater than or equal to the orthographic projection area of the first welding part **71** on the projection plane.

[0486] The area of the weldable region of the adapting piece **222** is greater than or equal to 1/12 of the area of the adapting piece **222**, such that the adapting piece **222** can provide a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal **12**.

[0487] For example, the area of the weldable region of the adapting piece **222** is 1/11, 1/10, 1/9, ⅛, or the like of the total area of the adapting piece **222**.

[0488] In some embodiments, the tab part **221** is indirectly electrically connected to the first post terminal **12** through the adapting piece **222**. As such, the weldable region of the conductive part **22** is the weldable region of the adapting piece **222**, and in the direction perpendicular to the projection plane, the projection area of the first welding part **71** on the projection plane is greater than or equal to 20% of the area of the weldable region of the adapting piece **222**.

[0489] In some embodiments, the area of the weldable region of the adapting piece **222** is greater than or equal to 1/10 of the area of the adapting piece **222**.

[0490] In the above technical solution, by setting the area of the weldable region of the adapting piece **222** to be greater than or equal to 1/10 of the area of the adapting piece **222**, the adapting piece **222** provides a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal **12**. For example, the area of the weldable region of the adapting piece **222** is 1/10, 1/7, ⅙, ⅕, or the like of the total area of the adapting piece **222**.

[0491] In some embodiments, as shown in FIG. **56**, all the first post terminals **12** of the battery cell **10** are provided on the same wall of the housing **11**. As such, all the first post terminals **12** are provided on the first wall **110**, such that the welding of the active substance-coated part **21** to the corresponding first post terminal **12** can be performed on the same side of the housing **11**, so as to improve the operational convenience.

[0492] It can be understood that when all the first post terminals **12** of the battery cell **10** are provided on the first wall **110**, the first wall **110** may be a wall with the largest area of the housing **11**, or the area of the first wall **110** may be smaller than the area of the wall with the largest area of the housing **11**.

[0493] In some embodiments, as shown in FIG. **56**, the housing **11** includes a housing body **111** and a housing cover **112**. An end of the housing body **111** is open, the housing cover **112** is fitted to the open end of the housing body **111**, and the post terminals **12** are all provided at an end of the housing body **111** distal to the housing cover **112**. The end of the housing body **111** distal to the housing cover **112** can be understood as an end of the housing body **111** opposite to the housing cover **112**. When the battery cell **10** is assembled, the battery cell assembly **2** will enter the housing body **111** from the open end of the housing body **111**. At this time, the conductive part **22** can contact the post terminal **12** and be mounted in the direction of the battery cell assembly **2** entering the housing. In this process, the mounting of the conductive part **22** and the post terminal **12** is relatively easy, which can improve the assembly efficiency.

[0494] Optionally, the housing cover **112** may be formed as a flat plate structure, or may be formed

as a cover body structure that is open toward one end of the housing body **111**.

[0495] In some embodiments, all the first post terminals **12** of the battery cell **10** are provided on different walls of the housing **11**, respectively, so as to facilitate flexible arrangement of the battery cells **10** and other electrical connection components.

[0496] Specifically, as shown in FIG. **56**, the housing **11** is provided with a second wall **120**. The second wall **120** can be provided opposite to and spaced from the first wall **110**, or provided at an included angle, and a second mounting hole **114** is formed on the second wall **120**. In this case, the plurality of first post terminals **12** can include a first polarity post terminal **12**A and a second polarity post terminal **12**B having different polarities. As such, the mounting hole **113** is provided with the first polarity post terminal **12**A, and the second mounting hole **114** is provided with a second polarity post terminal **12**B having a polarity opposite to that of the first polarity post terminal **12**A. Similarly, one of the first polarity post terminal **12**A and the second polarity post terminal **12**B is a positive electrode post terminal, and the other is a negative electrode post terminal. Moreover, the second wall **120** can be adjacent to and not parallel to the first wall **110**, or the second wall **120** is not adjacent to the first wall **110**, and at this time, the second wall **120** can be parallel to or not parallel to the first wall **110**. The first polarity post terminal **12**A and the second polarity post terminal **12**B are provided on different walls of the housing **11**, respectively.

[0497] More specifically, all the first post terminals **12** of the battery cell **10** are provided, respectively, on two walls of the housing **11** that are provided opposite to each other, or all the first post terminals **12** of the battery cell **10** are provided, respectively, on two walls of the housing **11** that are provided adjacent to each other. Certainly, all the first post terminals **12** of the battery cell **10** can also be provided on three or more walls of the housing **11**, respectively.

[0498] At this time, the battery cell assembly **2** includes one active substance-coated part **21** or a plurality of electrically connected active substance-coated parts **21**. The battery cell assembly **2** further includes two conductive parts **22** having opposite polarities. One of the two conductive parts **22** and the first polarity post terminal **12**A, and the other of the two conductive parts **22** and the second polarity post terminal **12**B are electrically connected through a first welding part **71**. It can be seen that when the battery cell assembly **2** includes a plurality of active substance-coated parts **21**, the plurality of active substance-coated parts **21** can be connected in parallel between the first polarity post terminal **12**A on the first wall **110** and the second polarity post terminal **12**B on the second wall **120**, so as to increase the capacity of the battery cell **10**.

[0499] Taking the cross-section of the second mounting hole **114** as a projection plane, in a direction perpendicular to the projection plane, a projection area of the first welding part **71** corresponding to the second polarity post terminal **12**B on the projection plane is greater than or equal to 0.03% of the projection area of the second wall **120** on the projection plane, so as to increase the current passage area and current passage capacity of the second polarity post terminal **12**B on the second wall **120**, which is conducive to increasing the charging speed of the battery cell **10**, and also conducive to reducing the current passage temperature of the second polarity post terminal **12**B, and thus helping to reduce the risk of loss of control of the battery cell **10**.

[0500] Obviously, regardless of the number of active substance-coated parts **21** of the battery cell assembly **2**, the two conductive parts **22** of each battery cell assembly **2** are electrically connected to the corresponding active substance-coated part **21**, and one of the conductive parts **22** of each battery cell assembly **2** is electrically connected to the first polarity post terminal **12**A on the first wall **110** through the first welding part **71**, and the other conductive part **22** is electrically connected to the second polarity post terminal **12**B on the second wall **120** through another first welding part **71**.

[0501] Therefore, in the above technical solution of the present application, the arrangement of the first polarity post terminal **12**A and the second polarity post terminal **12**B is relatively flexible, which enables the battery cell **10** to meet different layout requirements.

[0502] In some embodiments, as shown in FIGS. **70**-**73**, the mounting hole **113** includes a plurality

of sub-holes **1131** spaced from each other. The first polarity post terminal **12**A includes a plurality of first post terminals **12**. The plurality of first post terminals **12** are provided at the plurality of sub-holes **1131** in a one-to-one correspondence. The battery cell assembly **2** includes a plurality of active substance-coated parts **21**, and the conductive part **22** includes a plurality of conductive sub-parts connected to the plurality of active substance-coated parts **21** in a one-to-one correspondence. Each of the conductive sub-parts is electrically connected to one first post terminal **12** through one welding sub-part **71**.

[0503] Taking the plane where the cross-section of the mounting hole **113** is located as a projection plane, in a direction perpendicular to the projection plane, the sum of projection areas of the plurality of welding sub-parts **71** on the projection plane is greater than or equal to 0.1% of a projection area of the first wall **110** on the projection plane, so as to achieve an increase in the current passage capacity of the first polarity post terminal **12**A.

[0504] At this time, the arrangement of the second polarity post terminal **12**B of the battery cell **10** can be set according to actual requirements. For example, in the example shown in FIG. **71**, a plurality of first post terminals **12** are provided in a plurality of sub-holes **1131** of the mounting hole **113** in a one-to-one correspondence. A second mounting hole **114** is also formed on the housing **11**, and the second mounting hole **114** also includes a plurality of sub-holes **1131** that are spaced from each other. The second polarity post terminal **12**B includes a plurality of second post terminals **15**. The plurality of second post terminals **15** are provided in the plurality of sub-holes **1131** of the second mounting hole **114** in a one-to-one correspondence. At this time, the second polarity post terminal **12**B and the first polarity post terminal **12**A can be provided on the same wall or different walls of the housing **11**.

[0505] Certainly, in other embodiments of the present application, the mounting hole **113** includes one sub-hole **1131**, the first polarity post terminal **12**A includes one first post terminal **12**. The second mounting hole **114** also includes one sub-hole **1141**, and the second polarity post terminal **12**B includes one second post terminal **15**. It can be understood that, for the battery cell **10**, the number of the first post terminals **12** and the number of the second post terminals **15** may be equal or different.

[0506] In some embodiments, all the post terminals are provided on two opposite walls of the housing **11**, respectively, and the post terminals are provided on the first wall **110** and the wall of the housing **11** opposite to the first wall **110**, respectively, so as to realize flexible arrangement of the post terminals.

[0507] In some embodiments, as shown in FIGS. **67**-**72**, the outer contour of the cross-section of the first polarity post terminal **12**A is rectangular, track-shaped, or elliptical. The cross-section of the first polarity post terminal **12**A can be perpendicular to the axial direction of the mounting hole **113**, so as to facilitate the flexible arrangement of the outer contour of the first polarity post terminal **12**A. Meanwhile, the length of the cross-section of the first polarity post terminal **12**A is greater than the width thereof, which is conducive to achieving a good match between the first polarity post terminal **12**A and the first wall **110** in the length direction of the cross-section of the first polarity post terminal **12**A and the width direction of the cross-section of the first polarity post terminal **12**A. For example, the length of the first wall **110** in the length direction of the cross-section of the first polarity post terminal **12**A is greater than the width of the first wall **110** in the width direction of the cross-section of the first polarity post terminal **12**A, such that the cross-sectional area of the first polarity post terminal **12**A that can be provided on the first wall **110** can be increased to a certain extent, which is conducive to increasing the cross-sectional area of the first polarity post terminal **12**A within the limited arrangement region on the first wall **110**, and thus increasing the current passage area of the first polarity post terminal **12**A, increasing the current passage capacity of the first polarity post terminal **12**A, and increasing the thermal diffusion capacity of the first polarity post terminal **12**A, and further conducive to increasing the charging speed of the battery cell **10**.

[0508] Meanwhile, the outer contour of the cross-section of the second polarity post terminal **12**B having an opposite polarity to the first polarity post terminal **12**A is rectangular, track-shaped, or elliptical, which is also conducive to achieving a good match between the second polarity post terminal **12**B and the corresponding wall of the housing **11** (such as the first wall **110** or the second wall **120**) in the length direction of the cross-section of the second polarity post terminal **12**B and the width direction of the cross-section of the second polarity post terminal **12**B, so as to make full use of the effective arrangement region of the corresponding wall of the housing **11** to increase the cross-sectional area of the second polarity post terminal **12**B, which is conducive to increasing the current passage capacity of the second polarity post terminal **12**B, and thus increasing the charging speed of the battery cell **10**.

[0509] The rectangle in the above embodiments of the present application can be understood in a broad sense, and the four corners of the rectangle can be in the form of right-angled transitions, rounded transitions, or the like. The track shape can be understood as including two parallel line segments and two semicircles connecting the two line segments, for example, a running track shape. It can be understood that the outer contour of the cross-section of the second polarity post terminal **12**B of the battery cell **10** can be the same as or different from the shape of outer contour of the cross-section of the first polarity post terminal **12**A, and the first polarity post terminal **12**A and the second polarity post terminal **12**B can be located on the same wall of the housing **11**, or on different walls of the housing **11**, respectively.

[0510] In some embodiments, as shown in FIGS. **56** and **67**-**72**, on the cross-section of the first polarity post terminal **12**A, the size of the first polarity post terminal **12**A in a first direction X is greater than or equal to three times the size of the first polarity post terminal **12**A in a second direction Y, and the first direction X, the second direction Y and the axial direction of the mounting hole **113** are perpendicular to each other, which is conducive to achieving a good match between the first polarity post terminal **12**A and the first wall **110** in the first direction X and the second direction Y, such that the first polarity post terminal **12**A makes full use of the arrangement region of the first wall **110** to increase the cross-sectional area of the first polarity post terminal **12**A within the limited arrangement region on the first wall **110**, so as to facilitate the first polarity post terminal **12**A to be configured as a “super large post terminal structure”, which is conducive to increasing the current passage area, current passage capacity and thermal diffusion capacity of the first polarity post terminal **12**A.

[0511] As shown in FIGS. **56** and **67**-**72**, on the cross-section of the second polarity post terminal **12**B, the size of the second polarity post terminal **12**B in the first direction X is greater than or equal to three times the size of the second polarity post terminal **12**B in the second direction Y, and the polarity of the second polarity post terminal **12**B is opposite to the polarity of the first polarity post terminal **12**A. At this time, the second polarity post terminal **12**B and the first polarity post terminal **12**A can be located on the same wall of the housing **11**, or the second polarity post terminal **12**B and the first polarity post terminal **12**A are located, respectively, on two walls of the housing **11** that are provided opposite to each other, which is conducive to achieving a good match between the second polarity post terminal **12**B and the corresponding wall of the housing **11** in the first direction X and the second direction Y, such that the second polarity post terminal **12**B makes full use of the arrangement region of the corresponding wall of the housing **11**, which is conducive to increasing the current passage area, current passage capacity and thermal diffusion capacity of the second polarity post terminal **12**B.

[0512] For example, the size of the first polarity post terminal **12**A in the first direction X may be 3 times, 3.5 times, 4 times, or 4.2 times the size of the first polarity post terminal **12**A in the second direction, and the size of the second polarity post terminal **12**B in the first direction X may be 3 times, 3.5 times, 3.7 times, or 4.2 times the size of the second polarity post terminal **12**B in the second direction.

[0513] Illustratively, the first direction X is the length direction of the cross-section of the first

polarity post terminal **12**A, and the second direction Y is the width direction of the cross-section of the first polarity post terminal **12**A. At this time, the axial direction of the mounting hole **113** can be understood as the height direction of the first polarity post terminal **12**A or the axial direction of the first polarity post terminal **12**A.

[0514] Alternatively, on the cross-section of the second polarity post terminal **12**B, the size of the second polarity post terminal **12**B in the axial direction of the mounting hole **113** is greater than or equal to three times the size of the second polarity post terminal **12**B in the second direction Y, and the polarity of the second polarity post terminal **12**B is opposite to the polarity of the first polarity post terminal **12**A. At this time, the second polarity post terminal **12**B and the first polarity post terminal **12**A can be located, respectively, on two walls of the housing **11** that are perpendicular to each other, which is also conducive to achieving a good match between the second polarity post terminal **12**B and the corresponding wall of the housing **11** in the axial direction of the mounting hole **113** and the second direction Y, such that the second polarity post terminal **12**B makes full use of the arrangement region of the corresponding wall of the housing **11**, which is conducive to increasing the current passage area, current passage capacity and thermal diffusion capacity of the second polarity post terminal **12**B. The axial direction of the mounting hole **113** may be the length direction of the wall where the second polarity post terminal **12**B is located.

[0515] In some embodiments, as shown in FIG. **56**, the size of the first wall **110** in the first direction X is greater than the size of the first wall **110** in the second direction Y. As such, the length direction of the first wall **110** can be consistent with the length direction of the cross-section of the first polarity post terminal **12**A, and the width direction of the first wall **110** can be consistent with the width direction of the cross-section of the first polarity post terminal **12**A, so as to further achieve a good match between the first wall **110** and the first polarity post terminal **12**A in the first direction X and the second direction Y, such that the first polarity post terminal **12**A further makes full use of the arrangement region of the first wall **110**.

[0516] Illustratively, a first polarity post terminal **12**A and a second polarity post terminal **12**B are provided on the first wall **110**, and the first polarity post terminal **12**A and the second polarity post terminal **12**B can be spaced to each other in the first direction X, such that the arrangement direction of the first polarity post terminal **12**A and the second polarity post terminal **12**B matches the length direction of the first wall **110**, so as to achieve a suitable spacing between the first polarity post terminal **12**A and the second polarity post terminal **12**B. Certainly, the second polarity post terminal **12**B and the first polarity post terminal **12**A can also be provided on different walls of the housing **11**, respectively. Taking the case where the housing **11** is provided with a second wall **120**, and the second wall **120** is provided with a second polarity post terminal **12**B as an example, if the second wall **120** is provided opposite to and spaced from the first wall **110**, the size of the second wall **120** in the first direction X can be greater than the size of the second wall **120** in the second direction Y, such that the second polarity post terminal **12**B makes full use of the arrangement region provided by the second wall **120**. If the second wall **120** is provided at an included angle to the first wall **110**, the length direction of the cross-section of the second polarity post terminal **12**B can be set to be consistent with the length direction of the second wall **120**, and the width direction of the cross-section of the second polarity post terminal **12**B can be set to be consistent with the width direction of the second wall **120**, such that the second polarity post terminal **12**B also makes full use of the arrangement region provided by the second wall **120**.

[0517] In some embodiments, as shown in FIGS. **67**-**72**, the first polarity post terminal **12**A includes a first part **128** located outside the first wall **110**, and the first part **128** is annular. In the first direction X, the inner ring length of the first part **128** is greater than or equal to ⅓ of the length of the first wall **110**, and in the second direction Y, the inner ring width of the first part **128** is greater than or equal to ¾ of the width of the first wall **110**.

[0518] In the above technical solution, by setting the inner ring length of the first part **128** to be greater than or equal to ⅓ of the length of the first wall **110**, and the inner ring width of the first

part **128** to be greater than or equal to ¾ of the width of the first wall **110**, the first polarity post terminal **12**A can provide a relatively large area for an electrical connection to the busbar component, so as to further increase the current passage capacity of the first polarity post terminal **12**A.

[0519] Illustratively, the inner ring length of the first part **128** is greater than or equal to 50 mm, and the inner ring width of the first part **128** is greater than or equal to 30 mm.

[0520] In some embodiments, the first polarity post terminal **12**A includes a second part **129** located on the inner side of the first wall **110**. In the first direction X, the length of the second part **129** is greater than or equal to ⅓ of the length of the first wall **110**, and in the second part Y, the width of the second part **129** is greater than or equal to ¾ of the width of the first wall **110**.

[0521] In the above technical solution, by setting the inner ring length of the second part **129** to be greater than or equal to ⅓ of the length of the first wall **110**, and the inner ring width of the second part **129** to be greater than or equal to ¾ of the width of the first wall **110**, the first polarity post terminal **12**A can provide a relatively large area for an electrical connection to the conductive part **22**, so as to further increase the current passage capacity of the first polarity post terminal **12**A.

[0522] Illustratively, the length of the second part **129** is greater than or equal to 50 mm, and the width of the second part **129** is greater than or equal to 30 mm.

[0523] As shown in FIG. **2**, the embodiments of the present application provide a battery **100**, including the battery cell **10** described above.

[0524] As shown in FIGS. **58** and **60**, in some embodiments, the battery **100** includes a battery cell **10** and a busbar component **30**.

[0525] The number of battery cells **10** is plural. The busbar component **30** is electrically connected to the first post terminals **12** of at least two battery cells **10**, the first post terminals **12** of the same polarity of each of the battery cells **10** is electrically connected to the busbar component **30** through a second welding part **72**, and the second welding part **72** is formed on the first cover plate **13**. The housing **11** includes a first wall **110**, a mounting hole **113** is formed on the first wall **110**, and the post terminal body **1201** is provided in the mounting hole **113**; on the cross-section of the mounting hole **113**, an orthographic projection area of the second welding part **72** is greater than or equal to 0.2% of an orthographic projection area of the first wall **110**.

[0526] The definition of the cross-section of the mounting hole **113** refers to the corresponding content described above, and can be understood as an orthographic projection area of a connection region between the busbar component **30** and the corresponding first post terminal **12** on the cross-section of the mounting hole **113**. As such, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** can reflect the area of the connection region between the busbar component **30** and the corresponding first post terminal **12**. If the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** meets the above conditions, then the equivalent resistance between the busbar component **30** and the first post terminal **12** can be reduced to a certain extent, the current passage area of the first post terminal **12** can be increased, and the current passage capacity of the first post terminal **12** can be increased, which is conducive to increasing the charging speed of the battery cell **10** and the fast charging performance of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent.

[0527] In the above technical solution, by setting the orthographic projection area of the second welding part **72** between the busbar component **30** and the corresponding first post terminal **12** on the cross-section of the mounting hole **113** to be greater than or equal to 0.2% of the orthographic projection area of the first wall **110**, the effective current passage area between the busbar component **30** and the corresponding first post terminal **12** is greater than or equal to 0.2% of the orthographic projection area of the first wall **110**, so as to increase the effective current passage area of the busbar component **30** and the first post terminal **12**, increase the current passage area of the first post terminal **12**, and increase the current passage capacity of the first post terminal **12**,

which is conducive to increasing the charging speed of the battery cell **10**, and also conducive to increasing the thermal diffusion capacity of the first post terminal **12** to a certain extent, reducing the current passage temperature of the first post terminal **12**, and thus helping to reduce the risk of loss of control of the battery cell **10**.

[0528] It can be understood that a plurality of post terminals may be provided, including a first polarity post terminal **12**A and a second polarity post terminal **12**B. The second polarity post terminal **12**B and the first polarity post terminal **12**A have opposite polarities, and can be a positive electrode post terminal and a negative electrode post terminal, respectively.

[0529] Optionally, the busbar component **30** and the first post terminal **12** are laser welded to form the second welding part **72**, but the present disclosure is not limited thereto.

[0530] In some embodiments, on the cross-section of the mounting hole **113**, the orthographic projection area of the second welding part **72** is greater than or equal to 0.4% of the orthographic projection area of the first wall **110**, so as to further increase the effective current passage area between the busbar component **30** and the first post terminal **12**, which is conducive to increasing the fast charging performance of the battery cell **10**.

[0531] In some embodiments, in a direction perpendicular to the cross-section of the mounting hole **113**, a part of the busbar component **30** overlapping with the post terminal body **1201** of the same polarity is a weldable region of the busbar component **30**, that is, the weldable region of the busbar component **30** is stacked with the post terminal body **1201** in the direction perpendicular to the projection plane, or in other words, in the direction perpendicular to the projection plane, the projection of the weldable region of the busbar component **30** on the cross-section of the mounting hole **113** overlaps with at least a part of the projection of the post terminal body **1201** on the cross-section of the mounting hole **113**. As such, the weldable region of the busbar component **30** can be understood as a region provided by the busbar component **30** that can be welded to the post terminal body **1201**, and therefore the area of the weldable region must be greater than or equal to the orthographic projection area of the second welding part **72** on the projection plane.

[0532] The orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** is greater than or equal to 0.2 of an area of the weldable region of the busbar component **30**. As such, the projection area of the second welding part **72** on the projection plane accounts for an appropriate proportion, so as to facilitate the welding operation between the busbar component **30** and the post terminal body **1201** under the premise of appropriately increasing the current passage capacity and thermal diffusion capacity of the post terminal body **1201**.

[0533] For example, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** is 0.2, 0.25, 0.35, 0.40, 0.50, 0.60, or the like, of the area of the weldable region of the busbar component **30**.

[0534] In some embodiments, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** is greater than or equal to 0.4 of an area of the weldable region of the busbar component **30**.

[0535] In the above technical solution, by setting the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** to be greater than or equal to 0.4 of the area of the weldable region of the busbar component **30**, it is conducive to further taking into account the current passage capacity of the post terminal **12** and the convenience of the welding operation.

[0536] For example, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** is 0.4, 0.45, 0.55, 0.65, 0.70, or the like of the area of the weldable region of the busbar component **30**.

[0537] In some embodiments, the orthographic projection of the second welding part **72** on the cross-section of the mounting hole **113** is in the shape of any one of a straight line, a curve, a circle, a polygon or a ring.

[0538] For example, referring to FIG. **58**, the orthographic projection of the second welding part **72**

on the cross-section of the mounting hole **113** may be a circular ring-shaped weld seam. The diameter of the circular ring-shaped weld seam is greater than or equal to 5 mm, and an effective weld width W is greater than or equal to 2 mm.

[0539] In some embodiments, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** may be 10 mm.sup.2-20 mm.sup.2. For example, the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113** may be 10 mm.sup.2, 12 mm.sup.2, 15 mm.sup.2, 17 mm.sup.2, 19 mm.sup.2, 20 mm.sup.2, or the like.

[0540] In some embodiments, in a direction perpendicular to the cross-section of the mounting hole **113**, a part of the busbar component **30** overlapping with the first post terminal **12** of the same polarity is a weldable region of the busbar component **30**, that is, the weldable region of the busbar component **30** overlaps with the first post terminal **12** of the same polarity in the direction perpendicular to the cross-section of the mounting hole **113**, or in other words, in the direction perpendicular to the cross-section of the mounting hole **113**, the orthographic projection of the weldable region of the busbar component **30** on the cross-section of the mounting hole **113** overlaps with at least a part of the orthographic projection of the first post terminal **12** of the same polarity on the cross-section of the mounting hole **113**. As such, the weldable region of the busbar component **30** can be understood as a region provided by the busbar component **30** that can be welded to the first post terminal **12**, and therefore the area of the weldable region of the busbar component **30** must be greater than or equal to the orthographic projection area of the second welding part **72** on the cross-section of the mounting hole **113**.

[0541] The area of the weldable region of the busbar component **30** is greater than or equal to 20% of the orthographic projection area of the busbar component **30** on the cross-section of the mounting hole **113**. In this way, the busbar component **30** can provide a sufficient weldable region, so as to lay a foundation for improving the current passage capacity and thermal diffusion capacity of the first post terminal **12**.

[0542] For example, the area of the weldable region of the busbar component **30** is 20%, 25%, 30%, 35%, 40%, or the like of the total area of the busbar component **30**.

[0543] In some embodiments, the area of the weldable region of the busbar component **30** is less than or equal to 50% of the orthographic projection area of the busbar component **30** on the cross-section of the mounting hole **113**. By setting the area of the weldable region of the busbar component **30** to be greater than or equal to 50% of the orthographic projection area of the busbar component **30** on the cross-section of the mounting hole **113**, it is conducive to further taking into account the current passage capacity of the first post terminal **12** and the convenience of the welding operation.

[0544] In some embodiments, the area of the weldable region of the busbar component **30** is greater than or equal to 30% of the orthographic projection area of the busbar component **30** on the cross-section of the mounting hole **113**. By setting the area of the weldable region of the busbar component **30** to be greater than or equal to 30% of the orthographic projection area of the busbar component **30** on the cross-section of the mounting hole **113**, it is conducive to further taking into account the current passage capacity of the first post terminal **12** and the convenience of the welding operation.

[0545] As shown in FIG. **1**, the embodiments of the present application provide an electrical apparatus **1000**, including the battery **100** described above.

[0546] The battery **100** is configured to provide electrical energy to the electrical apparatus **1000**. The electrical apparatus **1000** may be any one of the aforementioned devices or systems that apply the battery **100**. It should be noted that the embodiments and features of the embodiments in the present application may be combined with each other without conflict.

[0547] The above are only preferred embodiments of the present application, and are not intended to limit the present application. For those skilled in the art, the present application can be modified

and varied. Any modification, equivalent substitution, improvement, and the like made within the spirit and principle of the present application shall all fall within the protection scope of the present application.

Claims

1. A battery cell, comprising: a housing assembly, comprising a housing and a first post terminal, the first post terminal comprising a post terminal body and a first cover plate, the post terminal body being mounted in the housing, and the first cover plate being provided on the post terminal body; a battery cell assembly, comprising an active substance-coated part and a conductive part connected to the active substance-coated part, the active substance-coated part being accommodated in the housing, and the conductive part being connected to the post terminal body through a first welding part, wherein the first welding part is at least partially located on a side of the post terminal body away from the active substance-coated part, and the first cover plate is configured to shield the first welding part.
2. The battery cell according to claim 1, wherein the post terminal body is provided with a first accommodating groove, a surface of the first post terminal on a side facing the active substance-coated part is a post terminal inner end surface, an opening of the first accommodating groove is formed on the post terminal inner end surface, and the first accommodating groove is provided with a first end wall and a first side wall; the first end wall is located on a side of the first side wall distal to the active substance-coated part, at least a part of the conductive part is accommodated in the first accommodating groove, the first welding part is provided on the first end wall, and the first cover plate is fitted to the post terminal body and covers the first welding part.
3. The battery cell according to claim 2, wherein the first end wall is provided with a first recess, and at least a part of the first welding part is located in the first recess.
4. The battery cell according to claim 2, wherein the first post terminal is provided with a first groove, a surface of the first post terminal on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the first groove is formed on the post terminal outer end surface, and the first cover plate covers the opening of the first groove.
5. The battery cell according to claim 2, wherein the active substance-coated part comprises a current collector and an active substance layer provided on the current collector, the conductive part comprises a tab part electrically connected to the current collector, the tab part comprises a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, at least a part of the second gathering part is accommodated in the first accommodating groove, and the second gathering part is connected to the first end wall through the first welding part.
6. The battery cell according to claim 2, wherein the active substance-coated part comprises a current collector and an active substance layer provided on the current collector, the conductive part comprises a tab part and an adapting piece, the tab part comprises a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, the adapting piece is connected to the second gathering part, at least a part of the adapting piece is accommodated in the first accommodating groove, and the adapting piece is connected to the first end wall through the first welding part.
7. The battery cell according to claim 5, wherein at least a part of the first gathering part is accommodated in the first accommodating groove.
8. The battery cell according to claim 2, wherein the housing is provided with a mounting hole, and

the first post terminal is mounted in the mounting hole; in an axial direction of the first post terminal, a depth H1 of the first accommodating groove is greater than or equal to a minimum distance H2 from the post terminal inner end surface to the mounting hole.

9. The battery cell according to claim 1, wherein the post terminal body is provided with a second accommodating groove, a surface of the post terminal body on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the second accommodating groove is formed on the post terminal outer end surface, the second accommodating groove is provided with a second end wall proximal to the active substance-coated part, the first welding part is provided on the second end wall, and the first cover plate is fitted to the post terminal body and covers the opening of the second accommodating groove.

10. The battery cell according to claim 9, wherein the conductive part is located on a side of the second end wall facing the active substance-coated part.

11. The battery cell according to claim 9, wherein the second accommodating groove is in communication with the interior of the housing through a first perforation, the conductive part is provided in the first perforation in a penetrating manner and is at least partially accommodated in the second accommodating groove, and the conductive part is at least partially provided on a side of the second end wall away from the active substance-coated part.

12. The battery cell according to claim 11, wherein the second accommodating groove is further provided with a second side wall, the second side wall is located on a side of the second end wall distal to the active substance-coated part, and the second side wall and the second end wall define, in an enclosing manner, the second accommodating groove; the first perforation is formed on the second end wall, the second end wall is provided with a second recess, and at least a part of the first welding part is located in the second recess.

13. The battery cell according to claim 11, wherein the active substance-coated part comprises a current collector and an active substance layer provided on the current collector, the conductive part comprises a tab part electrically connected to the current collector, the tab part comprises a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, at least a part of the second gathering part is accommodated in the second accommodating groove, and the second gathering part is connected to the second end wall through the first welding part.

14. The battery cell according to claim 11, wherein the active substance-coated part comprises a current collector and an active substance layer provided on the current collector, the conductive part comprises a tab part and an adapting piece, the tab part is electrically connected to the current collector, the tab part comprises a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, the adapting piece is connected to the second gathering part, at least a part of the adapting piece is accommodated in the second accommodating groove, and the adapting piece is connected to the second end wall through the first welding part.

15. The battery cell according to claim 13, wherein at least a part of the first gathering part is accommodated in the second accommodating groove.

16. The battery cell according to claim 13, wherein the post terminal body is provided with a first accommodating part, the first accommodating part is provided with a third accommodating groove, a surface of the first post terminal on a side facing the active substance-coated part is a post terminal inner end surface, the third accommodating groove is located on a side of the second accommodating groove proximal to the active substance-coated part, and an opening of the third accommodating groove is formed on the post terminal inner end surface; the third accommodating

groove is in communication with the second accommodating groove through the first perforation, and at least a part of the first gathering part is accommodated in the third accommodating groove.

17. The battery cell according to claim 11, wherein the housing assembly further comprises a second cover plate, the second cover plate lids the first perforation and is located outside the conductive part located in the second accommodating groove.

18. The battery cell according to claim 9, wherein the housing is provided with a mounting hole, and the first post terminal is mounted in the mounting hole; in an axial direction of the first post terminal, a depth H3 of the second accommodating groove is greater than or equal to a minimum distance H4 from the post terminal outer end surface to the mounting hole.

19. The battery cell according to claim 1, wherein the post terminal body is provided with a first accommodating part, the first accommodating part is provided with a fourth accommodating groove a surface of the post terminal body on a side distal to the active substance-coated part is a post terminal outer end surface, an opening of the fourth accommodating groove is formed on the post terminal outer end surface, the fourth accommodating groove is in communication with the interior of the housing through a second perforation, the conductive part is provided in the second perforation in a penetrating manner, the first welding part is provided on a wall of the second perforation formed in the first accommodating part, and the first cover plate is fitted to the post terminal body and covers the second perforation.

20. The battery cell according to claim 19, wherein the post terminal body comprises a first post terminal part and a second post terminal part made of different materials and electrically connected, the second post terminal part is located on a side of the first post terminal part distal to the active substance-coated part, the first accommodating part is provided on the first post terminal part or on the first post terminal part and the second post terminal part, and the first welding part is provided on the first post terminal part.

21. The battery cell according to claim 1, wherein the first cover plate is provided with a second accommodating part, the second accommodating part is provided with a fifth accommodating groove, an opening of the fifth accommodating groove is formed on an end surface of the first cover plate on a side facing the active substance-coated part, and the fifth accommodating groove is provided with a third end wall and a third side wall; the third end wall is located on a side of the third side wall distal to the active substance-coated part, and at least a part of the first welding part is accommodated in the fifth accommodating groove.

22. The battery cell according to claim 1, wherein the first cover plate is electrically connected to the post terminal body; or, the first cover plate is provided to be insulated from the post terminal body.

23. The battery cell according to claim 1, wherein the first cover plate comprises a first conductive member and a second conductive member made of different materials, the first conductive member is fitted to and electrically connected to the post terminal body, and the second conductive member is fitted to and electrically connected to the first conductive member.

24. The battery cell according to claim 23, wherein the first conductive member is provided with a second groove, the second conductive member is embedded in the second groove, and an opening of the second groove is formed on a surface of the first conductive member on a side distal to the active substance-coated part, such that the second conductive member is exposed from the opening of the second groove.

25. The battery cell according to claim 23, wherein the first cover plate is provided with a stress relief groove, and the stress relief groove is located in an outer peripheral region of the first cover plate.

26. The battery cell according to claim 2, further comprising: a support, located in the housing and on a side of the active substance-coated part proximal to the first post terminal, the support being provided with a clearance hole configured to provide clearance for the conductive part, and the conductive part being suitable for extending to a side of the support distal to the active substance-

coated part through the clearance hole.

27. The battery cell according to claim 26, wherein the post terminal body is provided with a first accommodating part, the support is provided with a guiding part, the guiding part defines, in an enclosing manner, at least a part of the clearance hole, and the guiding part at least partially extends to the first accommodating part.

28. The battery cell according to claim 26, wherein the clearance hole includes a first hole segment and a second hole segment, the second hole segment is located on a side of the first hole segment proximal to the active substance-coated part and the cross-sectional area of the second hole segment gradually increases in a direction distal to the first hole segment, the active substance-coated part includes a current collector and an active substance layer provided on the current collector, the conductive part includes a tab part electrically connected to the current collector, the tab part includes a plurality of tab plates, parts of the plurality of tab plates proximal to the current collector converge to form a first gathering part, parts of the plurality of tab plates distal to the current collector converge and are connected to form a second gathering part, the first gathering part connects the second gathering part and the active substance-coated part, at least a part of the first gathering part is accommodated in the second hole segment, and the second gathering part is provided in the first hole segment in a penetrating manner.

29. The battery cell according to claim 26, wherein the support is of an integrated structure; or, the support is of a split-type structure and includes a first support and a second support that are separable, and a clearance hole is defined between the first support and the second support.

30. The battery cell according to claim 1, wherein the housing is provided with a first wall, a mounting hole is formed on the first wall, and the post terminal body is provided in the mounting hole; taking a plane where the cross-section of the mounting hole is located as a projection plane, in a direction perpendicular to the projection plane, a ratio of a projection area of the first welding part on the projection plane to a projection area of the first wall on the projection plane is in a range of 0.1%-1%.

31. The battery cell according to claim 30, wherein the housing is provided with a mounting hole, the post terminal body comprises a post terminal body part, a first limiting stage part, and a second limiting stage part that are integrally formed, the post terminal body part is provided in the mounting hole in a penetrating manner, the first limiting stage part and the second limiting stage part are provided at both ends of the post terminal body part in an axial direction of the mounting hole, the first limiting stage part is in limiting fit with an outer side of the housing, and the second limiting stage part is in limiting fit with an inner side of the housing, such that the post terminal body is riveted to the housing.

32. The battery cell according to claim 1, wherein the battery cell further comprises: an outer insulating member, wherein the outer insulating member is wrapped outside the housing.

33. The battery cell according to claim 32, wherein the housing is provided with a first wall, a mounting hole is formed on the first wall, the post terminal body is provided in the mounting hole, the battery cell further comprises a patch covering an outer side of the first wall, the outer insulating member comprises an outer insulating film, the outer insulating film is an integrated film, the outer insulating film is provided with a connecting part, and the connecting part extends to the outer side of the first wall and is connected to the patch.

34. The battery cell according to claim 33, wherein a minimum distance between an edge of the outer insulating film and the first post terminal is greater than or equal to 3 mm.

35. A battery, comprising the battery cell according to claim 1.

36. The battery according to claim 35, comprising: a plurality of the battery cell; and a busbar component, the busbar component being electrically connected to the first post terminals of at least two of the battery cells, the first post terminals of the same polarity of each of the battery cells being electrically connected to the busbar component through a second welding part, and the second welding part being formed on the first cover plate, wherein the housing comprises a first

wall, a mounting hole is formed on the first wall, and the post terminal body is provided in the mounting hole; on the cross-section of the mounting hole, an orthographic projection area of the second welding part is greater than or equal to 0.2% of an orthographic projection area of the first wall.

37. The battery according to claim 36, wherein in a direction perpendicular to the cross-section of the mounting hole, a part of the busbar component overlapping with the post terminal body of the same polarity is a weldable region of the busbar component, and the orthographic projection area of the second welding part on the cross-section of the mounting hole is greater than or equal to 0.2 of an area of the weldable region of the busbar component.

38. The battery according to claim 36, wherein in a direction perpendicular to the cross-section of the mounting hole, a part of the busbar component overlapping with the first post terminal of the same polarity is a weldable region of the busbar component, and an area of the weldable region of the busbar component is greater than or equal to 20% of the orthographic projection area of the busbar component on the cross-section of the mounting hole.

39. The battery according to claim 38, wherein the area of the weldable region of the busbar component is less than or equal to 50% of the orthographic projection area of the busbar component on the cross-section of the mounting hole.

40. An electrical apparatus, comprising the battery according to claim 35.